

YALE
MEDICAL LIBRARY



GENERAL MEDICAL
LIBRARY

PROCEEDINGS
OF THE
CONNECTICUT MEDICAL SOCIETY,
1905.

ONE HUNDRED AND THIRTEENTH
ANNUAL CONVENTION,
HELD AT
HARTFORD, MAY 24TH AND 25TH.

PUBLISHED BY THE SOCIETY.

W. R. STEINER, Editor.
WILLIAM H. CARMALT, M.D.,
N. E. WORDIN, M.D.,
Publication Committee.

BRIDGEPORT, CONN.:
PRESS OF THE FARMER PUB. Co.
1905.

The Connecticut Medical Society does not hold itself responsible for the opinions contained in any article unless such opinions are endorsed by special vote.

All communications intended for the Connecticut Medical Society must be addressed to Walter R. Steiner, M.D., Hartford, Conn.

The next Annual Meeting of the Connecticut Medical Society will be held in New Haven, May 23d and 24th, 1906.

TABLE OF CONTENTS.

	Page
Officers of the Society, 1903-1906.	7
Standing Committees.	9
Proceedings of the One Hundred and Twelfth Annual Meeting.	9
List of Fellows, ex-officio.	9
List of Fellows, elected by Counties.	10
Annual Address of the President to the Fellows.	11
Report of Chairman of Legislative Committee on amendment to the Charter and By-Laws.	17
Report of Committee concerning establishment of Colony for Epileptics in Connecticut.	22
Report of Treasurer.	24
Tax of Three Dollars Voted.	24
Committee on County Resolves.	25
Statute Amending the Charter of the President and Directors of the Retreat for the Insane.	29
Committee on Pabneyton.	31
Report of Committee on County Resolves.	31
Report of Committee on Medical Examinations.	32
Report of Committee on Arrangements.	37
Report of Auditing Committee.	37
Report of Committee to Nominate Physician to the Retreat for the Insane.	42
Report of Nominating Committee.	52
Vote Exempting Doctors Tarter, Mathewson and Bidwell from Taxation.	58
Meeting of House of Delegates.	53
Appointment of Counselors by the President.	54
House of Delegates Constituted.	54
Election of Officers.	54
Resignation of Dr. E. H. Welch.	55
Election of Dr. N. E. Woods.	57
Committee on Vaccination Appointed.	58
Selection of Place for Meeting in 1916.	62
Plan Provided for Keeping Old Manuscript Records of the Society.	62
Report of Committee to Consider Recommendations in the President's Address.	62
Adjournment of the House of Delegates.	66
The Annual Convention.	67
Report of the Secretary.	67
List of New Members.	72
Sketches of Deceased Members.	75

TABLE OF CONTENTS

	Page
President's Address.	
Summary of the Development and Present Status of Plastic Surgery.	31
Dissertation.	
The Use of Laboratory Aids in Diagnosis. C. J. Hartman, New Haven.	111
Medical Papers.	
The Prevention of Venereal Diseases. H. A. McDermott, New Haven.	129
Discussion.	135
The Gaylord Farm Sanatorium. J. P. C. Foster, New Haven.	141
Prophylaxis in Tuberculosis. C. D. Ames, Hartford.	148
Concerning Some of the Newer Neuro-Surgical Forms of Treatment of Abnormal Conditions of the Female Pelvic Organs. Kate C. Mead, Middletown.	151
The Best Effector for Rapid Dilatation of the Cervix. O. G. Ramsay, New Haven.	161
Pregnancy in the Congenital Malformations of the Uterus. C. E. Tapp, Hartford.	174
Infant Feeding with Condensed Milk. H. Matthews Steele, New Haven.	188
Contributions to the Study of Dysentery. A. R. Deffenbort and J. W. Fisher, Middletown.	195
Alcohol as a Remedy in Disease. T. D. Crothers, Hartford.	218
Some Suggestions on the Medical Treatment of Gall Stones. E. W. Gaudenough, Waterbury.	221
Surgical Papers.	
Report on the Progress of Surgery. C. C. Godfrey, Bridgeport.	231
Report on the Progress of Surgery. B. A. Cheney, New Haven.	261
Discussion.	278
The Treatment of Malignant Disease Including a Report of Over One Hundred Cases Cured by Surgical Operation. F. S. Denton, Norfolk.	282
Radical Operation for Mammary Carcinoma. W. F. Veale, New Haven.	291
Diagnosis in Carcinoma of the Stomach. E. P. McIlhenny, New Haven.	316
Surgical Aspects of Ulcer of the Stomach. H. M. Lee, New London.	324
Notes on Surgery of the Brain. H. G. Howe, Hartford.	348
Histology of Surgical Diseases of the Kidney and Ureter. G. C. Smith, Hartford.	357
Discussion.	375
Acute Intestinal Obstruction. Resection of Pilon Post. Keeney, D. S. Sullivan, Hartford.	385
Shin Grafting. S. A. Crane, Waterbury.	393

TABLE OF CONTENTS.

3

	Page
Discussion:	486
Chloroform. F. G. BOON, South Manchester.	491
The Use of Cocaine in Surgery. R. P. BOND, New Haven.	494
Discussion:	497
An Easy Efficient and Rational Method of Reducing a Recent Dislocation of the Shoulder Joint. E. C. CHIPMAN, New London.	499
Treatment of Tuberculous Joint Diseases. J. K. FOST, Hartford.	500
The Facial Nerve. F. S. CROSFIELD, Hartford.	505
Some Remarks on Adrenal Hypertrophy occurring in Children. R. TERRY SMITH, Hartford.	512
Discussion:	516
The Diagnosis and Treatment of Pronated Feet. J. H. WILLIAMS, Hartford.	519
Obituaries.	
HAL STRICKLAND of Enfield, by THOMAS D. CROTHERS, Hartford.	527
CHARLES FLETCHER SUMNER of Berlin, by ED. P. FLINT, of Rockville.	531
ORLANDO BROWN of Washington, by W. J. FORD, of Washington.	534
ONE HAPKINS CHURCHILL of Meriden, by E. T. BRADSTREET, of Meriden.	537
SAMUEL ALLEN WILSON of Windsor, by NEWTON E. DEB, of Windsor.	539
JOHN O'FARRELL of Hartford, by NATHAN HAYES, of Hartford.	540
FRANCIS DANIEL EDGEMAN of Middletown, by MIKE C. HAREN, of Madison.	541
JOHN HENRY GRANTHAM of Old Saybrook, by CHARLES H. HUBBARD, of Essex.	545
THOMAS EMERICH HARRFIELD of Westbrook, by C. E. MANGLEY, of Middletown.	548
ANDREW WOLF LYONS of Bridgeport, by JOHN WINTHROP WRIGHT, of Bridgeport.	552
WILLIAM DAVID SPEARS of Saybrook, by FRED SUMNER SMITH, of Chester.	545
WILLIAM CHADBOURNE HAYES of Coventry, by ED. P. FLINT, of Rockville.	546
LEON TRUE DAY of Westport, by W. H. DUNNISON, of Fairfield.	549
THOMAS LINCOLN AXTELL of Waterbury, by NELSON A. POMEROY, of Waterbury.	551
JOHN JOSEPH WILSON of Bristol, by WILLIAM W. HORTON, of Bristol.	555
JAMES ALBERT MAERS of New Haven, by W. M. KENNA, of New Haven.	556
The Banquet.	559

TABLE OF CONTENTS

	Page.
Report of Committee to Nominatc Physicians to the Re- scent for the Insane.	519
Report of Delegate to Vermont State Medical Society, by M. M. Johnson, Hartford, Delegate.	522
Report of Delegate to New York State Medical As- sociation, by O. T. Osborne, of New Haven, Delegate.	525
Resolution Concerning Vaccination.	527
Obituary Sketch of George Webster Burke of Middle- town, by John E. Bailey, of Middletown.	529
Amended Charter and By-Laws.	542
Members of the Society.	
Honorary Members.	557
Active Members by Counties with Post Office Address.	558
Alphabetical List With Degrees and Date of Gradu- tion.	572

OFFICERS OF THE SOCIETY.

1905—1906.

PRESIDENT.

NATHANIEL E. WORDIN, Bridgeport.

VICE-PRESIDENTS.

FREDERICK A. MORRELL, Putnam.

ELI P. FLINT, Rockville.

SECRETARY.

WALTER R. STEINER, Hartford.

TREASURER.

JOSEPH H. TOWNSEND, New Haven.

STANDING COMMITTEES.

Committee on Scientific Work.

GUSTAVUS KLOTZ, K. J. McKNIGHT,
W. R. STEINER.

Committee on Public Policy and Legislation.

E. J. McKNIGHT, Hartford County;
C. S. BODMAN, New Haven County;
H. H. HEYER, New London County;
J. W. WRIGHT, Fairfield County;
S. R. OVERLOCK, Windham County;
ELIAS PRATT, Litchfield County;
P. K. HALLOCK, Middlesex County;
W. L. HIGGINS, Tolland County.

Committee on Medical Examination.

J. FRANCIS CALEY,
WALTER L. BARBER,
CHARLES A. TUTTLE,
BORAUC S. FULLER,
SAMUEL M. GARLICK.

On Honorary Members and Degrees.

O. T. OSBORNE, C. R. STANLEY,
C. V. GILVERSLLEEVE, H. S. FULLER.

Committee on Publications.

W. R. STEINER, Editor,
W. H. CARMALT,
N. R. WORDIN.

PROCEEDINGS
OF THE
CONNECTICUT MEDICAL SOCIETY,
ONE HUNDRED AND THIRTEENTH ANNUAL MEETING.

The President and Fellows of the Connecticut Medical Society met in the Hunt Memorial Building, Wednesday afternoon, May twenty-fourth, 1905, and were called to order at 2 o'clock by the President. The Committee on Credentials reported, the Secretary calling the roll with the following result:

FELLOWS, *ex-officio*.

President.

WILLIAM H. CARMALT.

Vice-President.

*EDWARD H. WELCH.

Presidents of County Associations.

THEODORE G. WRIGHT,

*AUGUSTUS A. CRANE,

*GEORGE R. HARRIS,

*WILLIAM J. TILNEY,

CHARLES C. GILDERSLERVE,

*GEORGE H. KNIGHT,

FREDERICK S. SMITH,

*ERNEST O. WINSHIP.

Secretary.

S. E. WORDEN.

Assistant Secretary.

H. S. MILES.

Treasurer.

W. W. KNIGHT.

Committee on Matters of Professional Interest to the State.

*P. A. MORRELL,

*L. R. ALMY,

*WILLIAM PORTER, JR.

FELLOWS ELECTED IN 1905.

Hartford County

Kenneth J. McKnight, *Edwin A. Down,
Ansel G. Cook, Jay S. Stone,

George W. Lawrence,

New Haven County.

Edward S. Houlton, C. S. Bodman,
(E. W. Goodenough, H. L. Swain,

*C. J. Foote,

New London County

*J. H. Evans, Henry M. Lee,
xN. P. Smith, *Raymond R. Gandy,

*George H. Jennings,

Fairfield County.

Herbert E. Smyth, J. S. M. Garlick,
Frank L. Smith, *J. R. Topping,

Frank W. Stevens,

Windham County.

Henry L. Hammond, *Amos Avery,
Charles J. Fox, Robert C. Paine,

*Theodore R. Parker,

Litchfield County.

Elias Pratt, *Frank B. Lee,
*W. S. Richards, *A. J. Barker,

*James D. Hayes,

Middlesex County

John E. Bailey, | P. N. Hallack,
*Arthur J. Campbell, *Charles H. Hubbard,

Cushman A. Sears,

Tolland County.

Edwin T. Davis, William J. Higgins,
Eli P. Flint,

(Absent)

* Alternates for L. F. G. Graves. * Alternates for R. P. Wright.
* Alternates for P. H. Hubbard. * Alternates for R. L. Thompson.
* Alternates for P. J. Adams. * Alternates for L. L. Bennett.
* Alternates for W. S. Smith.

The record showed a full delegation for Fairfield and Talbot counties. The President then read his address to the Fellows.

ADDRESS TO THE FELLOWS.

Fellows of the Connecticut Medical Society:

In accordance with the by law which states that "the President shall at the annual meeting of the President and Fellows present such matter for their consideration as he may think requires attention," I beg to make the following report:

The matter of most personal interest to us this year, is the change in our Constitution that was voted upon last year, but which required action of the legislature to ratify. On bringing the matter to the attention of our legal adviser and fellow-member, the Hon. Charles R. Gross, in turn to present to the Legislature, it was found that the model which was presented to us by the American Medical Association for our consideration and which we tentatively adopted, was intended for those states which do not hold state charters, but desire to effect voluntary organization under the laws of their respective states; that no organization has both a charter and a constitution, and as we are acting under a charter which we had no right to give up and did not desire to give up, it was decided to ask the legislature to make the necessary amendments to the charter.

The executive officers of the society, the chairman of the committee on revision and the chairman of the committee on legislation, after consultation as above stated with Mr. Gross, prepared an amendment to the charter, making only such general changes as would render it in keeping with the constitution and by-laws. This was introduced into the General Assembly, has passed both Houses, and has been signed by the Governor. It remains for the coming meeting to accept the amendment to the charter, and for the secretary to file with the secretary of state a record of such acceptance.

The name "Society" was retained as more properly applying to a charter organization, and as having a higher legal standing than "Association," which was only adopted last year, after considerable opposition, to conform to most other state organizations.

The maximum tax which could be levied was left at five dollars as in the old charter, instead of three dollars as in the Constitution adopted. All matters in the Constitution adopted last year not included in the amendment to the charter, which should always be general in character, have been merged into the by-laws which are herewith submitted. No alterations have been made other than those of arrangement, except that the right to issue charters to county associations, has been stricken out as not being within the powers of this Society. With these exceptions, the Charter and the By-laws which are now before you are the same as those which were adopted last year, and it remains for us now to accept the amendment to the charter as prepared and presented.

In the constitution and by-laws as printed in the transactions of 1891, there are some verbal and typographical errors to which my attention was from time to time called, and on comparing the notes which the chairman of the committee on legislation, Dr. McKnight, took, and those which I took, with those which the stenographer sitting for the Secretary furnished us, we were able to rectify them all in the form which is before you.

I suggest that we immediately accept the amendments to the charter as made by the legislature and direct the secretary to transmit a record of our action to the secretary of state, for filing in his records, and that we also adopt the arrangement of the by-laws as presented by the committee on legislation, being the same that were adopted last year.

The Chairman of the Committee on Legislation, Dr. McKnight, has with the assistance of Mr. Gross outlined

a plan for changing from our present organization to the new one and I beg that you will give him your attention immediately that this address is finished. I may say that this plan has been worked over with the greatest care by Mr. Gross, every detail thought out and I am satisfied if we adopt this scheme we will be able to make the change without friction and in strict accordance with parliamentary law.

The committee on nomination of a physician to the retreat for the insane made a report to me in October of last year, the essential part of which, I think, you must be acquainted with. In consequence I called a meeting of the Fellows in Hartford on December 1st, 1904. A quorum was not present, therefore no official action could be taken; but in the informal conference which was held among the Fellows present of whom there were fifty out of the necessary fifty-four) to constitute a quorum, a complete unanimity of opinion was expressed, that inasmuch as in the first place the charter of the retreat for the insane had a *penal veto* power upon the nomination of a physician by this Society, and as it was so emphatically the wish of the directors of the retreat that they, being responsible for the management of the retreat, should hold the appointing power entirely in themselves, a view I may say shared by most of the Fellows then present, and, as further, they were able by giving the official physician in charge, an indefinite leave of absence, appointing as his assistant to act in his stead anyone they chose, not the nominee of this Society, and had in fact so done, it was evidently useless for us to insist upon our right to nominate.

However, when later I received notice from the directors of the retreat that they intended to apply to the legislature to so amend their charter as to release them from the necessity of applying to this Society for a nominee for a physician, I felt justified in assuming, from the unanimous expression of opinion of the large number of Fellows at the informal conference, that there could not

be any, or but an inconsiderable, opposition to this proposition, I decided not to put the Fellows to the inconvenience and expense of again coming together, but to let the matter take its course, not entering any opposition to the proposed action on the part of the Directors. I have received a certified copy of the action of the Legislature repealing the requirement of a nomination of a physician by a committee of this Society. This standing Committee is therefore discontinued.

Another matter of extreme importance to the health of the community, and therefore of interest to us, is an attempt, on the part of some misguided individuals, to have the laws now in force with regard to vaccination repealed. Public hearings have been held by the committee on Public Health and Safety, which your representatives, as well as the State Board of Health and others appeared in opposition to any change in the existing laws. The matter has not yet been finally acted upon in the Legislature. It behoves every member of this Society to use what influence he can to show the great danger to the health of the community which the repeal of these laws would work. The immunity which the public have enjoyed from this dreadful scourge for many years, by reason of the adoption in times past of stringent vaccination laws, has caused them to have become indifferent, or perhaps we had better say ignorant, of the dangers of non-vaccination; it is our duty to recall to their notice the ravages which this disease has made, in former times, and the certainty that they will occur again if this precaution be neglected, in order to arouse the public to a sense of its importance. The proposition to repeal was lost in the House and also in the Senate, in the latter by a narrow majority and may come up again to-day to reconsider and possibly pass—such action, if confirmed, would be of incalculable injury and loss to the community.

I beg leave to suggest that, either acting to-day as the executive body, or to-morrow in the general convention,

we pass some resolution reaffirming the necessity of keeping these laws on the statutes of the state.

The secretary's report which has been distributed to you refers to the two volumes of manuscript records of this Society from its inception in 1792 to 1862. I take pleasure in endorsing his suggestion, that they be deposited in some place secure from fire or flood for permanent preservation, and suggest that he be so empowered, taking whatever receipts may be necessary with the privilege of removal under proper precautions.

He also shows the many losses in our ranks. Seventeen members have died, Middlesex County having been particularly afflicted, five of the number being from that county, two of them ex-presidents. Four ex-presidents in all, have died, Chas. F. Sumner of Bolton, Orlando Brown of Washington, Francis D. Edgerton of Middletown, and John H. Grannis of Saybrook, have passed from among us. Dr. Sumner was active in the work of the Society some years ago and his name is frequently seen in the Proceedings, but advancing years have compelled him lately to be absent. All were men of the highest professional aims, of lovely character, and respected beyond their fellows in their respective communities. I cannot allow the three last names, however, to go by without expressing freely my sense of deep personal bereavement in their deaths. Dr. Brown's illness was prolonged, but borne with the courage and steel temper that characterized his whole life. Dr. Edgerton died in harness. Returning home late one night after a hard day's work, visiting his parents, he died after less than an hour's illness. Dr. Grannis succumbed after an attack of influenza with but a short illness. We shall miss their presence in our social intercourse, and their judgments in our deliberations.

In the course of the year I have attended one meeting of each of the county societies and I cannot do otherwise than express my appreciation of the courtesies invariably extended me, and of the pleasure it was to see the inter-

out in the papers read, many of which you will all have the opportunity to read in the printed proceedings.

If you will read over the duties assigned to the officers under the new rules to be adopted you will see that much is expected from the secretaries both that of the state society as well as those of the county societies and that the labors of the councillors are not light, but the objects to be attained are many and good and I see a divided gain to the profession in having their interest stimulated by the work of these officers. From my personal experience in visiting the county societies last year I take the liberty of suggesting that those having the appointing of the times of holding the meetings should, by correspondence or otherwise, so arrange that they be not held too close together so that it becomes a matter of difficulty to visit them all. You have made it the duty of the President "so far as practicable to visit the various sections of the state and assist the councillors in building up the county associations," etc. It becomes an irksome task to take three successive days out of one week to attend as many county meetings, held some times at distant parts of the state and in behalf of my successors I urge this concession to their convenience. I think it could readily be arranged.

The President: Gentlemen, I think I will call for the report of Dr. Chairman of the Committee on Legislation, that being the first business that we desire to get through with, and have straightened out so that we will know just where we are. I will call on Dr. McKnight.

Dr. McKnight: Gentlemen, this is the report of the legislation in so far as it concerns the charter and the revision of the by laws. (Dr. McKnight reads report.)

REPORT OF THE CHAIRMAN OF THE LEGISLATIVE COMMITTEE IN SO FAR AS IT CONCERNS THE AMENDMENT TO THE CHARTER AND THE REVISION OF THE BY-LAWS.

To the Members of the Connecticut Medical Society:

At the annual meeting of the President and Fellows of the Connecticut Medical Society held in New Haven, May 25th, 1904, a revised Constitution and By-Laws were adopted, formulated initially after a model issued by the American Medical Association.

At that meeting it was voted (see page 71, Proceedings, 1904) that the Committee on Legislation be required and requested to look after the matter of securing the necessary changes and alterations in our charter in keeping with the Constitution and By-Laws.

While endeavoring to prepare a suitable resolution for introduction into the General Assembly to carry out the provisions of this vote, the discovery was made that no organization has both a charter and a constitution, and that the model issued by the American Medical Association was evidently intended for those state associations which did not hold state charters, but might desire to effect voluntary organization under the laws of their respective states.

After a conference between the executive officers of the Society, the chairman of the committee on revision, the chairman of the committee on legislation, and our legal adviser, Hon. Charles E. Gross, an amendment to the charter was prepared, in which only such general changes were made as would render it in keeping with the Constitution and By-Laws adopted.

This was introduced into the General Assembly, has passed both houses, and has been signed by the Governor. It remains for this meeting to accept the amendment to the charter, and for the secretary to file with the Secretary of State a properly attested record of such acceptance.

The name "Society" was retained as more properly applying to a chartered organization and as having a higher legal standing than "association."

The maximum tax which could be levied was left at Five Dollars (\$5.00), as in the old charter, instead of Three Dollars (\$3.00), as in the Constitution adopted.

All matters in the Constitution adopted last year, not included in the amendment to the charter (which should always be general in character) have been merged in the By-Laws, copies of which were mailed to each member with the call for this meeting. No alterations have been made other than those of arrangement, except that the right to issue charters to county associations has been stricken out as being unnecessary and not within the powers of this Society.

Acting under instructions from the President of the Society, I have consulted legal authority as to the proper mode of procedure in making the transfer from the old charter and By-Laws to the new, and respectfully report as follows:

The first order of business after the reading of the President's address to the Fellows, should be the acceptance of the amendment to the charter. There should then be filed with the Secretary of State a copy of the vote of acceptance, properly attested by the Secretary of the Society.

As the new Society is the same legal corporation as the old Society, the officers of the Connecticut Medical Society will remain the officers of the Connecticut State Medical Society until their successors shall have been elected and have qualified by acceptance.

Upon the acceptance of the amendment to the charter, the President and Fellows of the Connecticut Medical Society will remain the administrative body of the Connecticut State Medical Society until new officers and delegates shall be chosen, and can proceed to carry out the program as heretofore arranged. When this meeting adjourns it must be to to-morrow morning, in order to

carry out the provisions of Chapter V, Section 4, which provides that "the election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the general session."

All sections of the By-Laws adopted in 1904, which were inconsistent with the charter as amended in 1870, were illegal, and are therefore not operative at the present time. Chapter XIV of the rearranged By-Laws as adopted last year, was not inconsistent with the charter then in force and is therefore operative. Under that By-Law the By-Laws which were printed and distributed with the call for this meeting can be presented as a whole to-day, laid upon the table, and made the special order of the day immediately after the calling of the meeting to order to-morrow morning.

E. J. McKNIGHT,

Chairman of the Committee on Legislation.

The President and Fellows of the old society are de facto the House of Delegates of the new until their successors shall be chosen. Mr. President, I want to call attention to two errors in the printing of these by-laws. They are of very little moment.

The President: I have it here.

Dr. McKnight: Well, I will ask the President to call attention to those errors.

The President: They are minor errors. In Chapter 7, Section 5, at the end of the page, the bottom of the page, it reads: "In the event of a vacancy in the office of Treasurer or Secretary, the Council shall fill the vacancy until the next election." Now the stenographic copy was: "At the next annual election." So that with your consent we will insert the word "annual" to make it clear, unless there is objection. The Secretary will be ordered to make that correction. In Chapter 9, Section 1, Section 1 should be crossed; there is no section 1; it is all Section 1. It simply should be crossed, that

is all; nothing radical. Unless there is objection made, those changes will be made. And in Chapter 13, under the head of "Miscellaneous," there is a slight grammatical error that may just as well be corrected. "No address or papers," the word "address or paper" we want to say.

Dr. McKnight: I make a motion, Mr. President, we accept the amendment to the charter. (Motion seconded.)

The President: The question is on the acceptance of the amendment to the charter as presented.

A Member: I move it be accepted.

The President: Is there any discussion on it? Those in favor please say "aye," Contrary "no."

Dr. McKnight: Mr. President, I would like to propose the by-laws, as printed with the corrections just made, for adoption by the society; and move that it be laid upon the table and be made the first order of business to-morrow after calling the meeting to order. Motion seconded.

The President: That will lie over until to-morrow.

Dr. McKnight: They have to be presented. I present them and ask that they be accepted and laid upon the table. The motion will have to be put.

The President: Will you speak upon the motion?

A Member: What is the motion?

The President: That the by-laws, as printed and distributed, be adopted with the changes that were made, the verbal changes that were made a few minutes ago, and made the first order of business for to-morrow morning, in the meeting of the House of Delegates. Will you speak upon it? Those in favor please say aye. Contrary, no. It is a vote.

It is now in order to instruct the Secretary to notify the Secretary of State that the amendment to the charter has been accepted by this Society.

A Member: I move that the Secretary be so instructed. Motion seconded.

The President: Moved and seconded that the Secretary be instructed to notify the Secretary of State that it has been accepted. It is a vote.

Dr. McKnight: I move that when this meeting adjourns, it adjourn to 9:20 to-morrow morning, half an hour before the meeting of the general session. The by-laws state that we do not interfere with the meetings of the general session.

The President: Hadn't we better say nine o'clock?

Dr. McKnight: I accept that.

The President: You will stand just as good a chance of getting a quorum at half past nine by making it nine; and a better one, than if you made it nine-thirty. It is moved and seconded that when this meeting adjourns, it adjourn to meet to-morrow in this hall at nine o'clock. Those in favor please say aye. Contrary, no. It is a vote.

The President: The Committee on Sealing Certificates to practice medicine with the society seal. Dr. Wurdin, Dr. Lindsay and Dr. Tuttle.

Dr. Wurdin: I am chairman of that committee, and I would report that the committee have deemed it advisable to have the seal of the society, the society permitting it, placed upon the certificates which are given to those who have passed their examination before the examining committee of this society, and that during the last year the certificates have been so stamped. The examining committee have prepared a form which can be mounted and framed and hung in the office of a physician, of which he will think considerable, and to this certificate, so prepared, the seal of the society has been placed, and they recommend that it be done hereafter.

The President: You have heard the report of the committee. What is your action?

Dr. Goodenough: I move that the report be accepted and the recommendation adopted. Motion seconded.

The President: You have heard the motion and it has been seconded. Is there any discussion? Those in favor please say *aye*. Contrary, *no*. It is a vote.

I call for the report of the committee to consider the best methods of public control and prevention of venereal disease. Dr. R. A. McDunnell and Dr. W. H. Donaldson. Are they ready to report? They are not present.

Committee on a Colony for Epileptics in this State. Dr. Diehsdorf, Dr. Mailhouse and the President are the committee. Dr. Mailhouse has written a report.

REPORT OF THE COMMITTEE APPOINTED TO
PRESENT TO THE GOVERNOR OF THE STATE,
PAPERS AND REASONS FOR THE ESTAB-
LISHMENT OF A COLONY FOR EPILEP-
TICS IN CONNECTICUT.

To the President and Fellows of the Connecticut Medical
Society:

Gentlemen:

At the last meeting of this Society, following the reading of a paper by Dr. M. Mailhouse on the subject "Should Connecticut Establish a Colony for Epileptics," it was voted "that a committee of three be appointed by the chair, one of whom shall be the incoming president, to present to the Governor/Elect a copy of this paper together with copies of reports of the committee formerly appointed to gather statistics on the number and condition of epileptics within the state; and to add such arguments and facts as the committee sees fit." In pursuance of this vote, the committee met Governor Roberts at the capitol early last winter and presented the papers and arguments as directed. The Governor viewed the matter with such favor that it was referred to in his message to the General Assembly as follows:

State Colony For Epileptics

The Connecticut Medical Society having adopted a resolution that a paper advocating a state colony for epileptics be presented to the Governor with the endorsement of the Society, a committee from the organization was heard in advocacy of the project.

From a canvass of the state made in 1901 by a committee of the Connecticut Medical Society it was shown that there were at that time not less than 500 epileptics in the state, of whom at least 125 were neither insane nor feeble-minded, and therefore proper subjects for treatment. The medical profession of the state, as represented in the Connecticut Medical Society, the largest organization of medical men in the state, recognizes in the so-called colony plan the best method of treatment for this class of unfortunates, as being at once humane, curative, scientific, and economical, as shown in several institutions of the kind in neighboring states in this country and in several foreign countries. In the establishment of colonies of epileptics they are given proper education and training, and instructed in diverse trades and industries, and subjected to scientific methods of treatment by physicians especially trained and experienced in the management of this disease.

This matter is one that can be properly referred to the committee on humane institutions for such action therein as they may deem advisable, if the persons interested desire its consideration by this general assembly and take the proper steps to this end.

A bill was then drafted by the committee on legislation for presentation to the Assembly but was not followed up because of the appearance of another bill having the same object, but wider in its scope introduced by a layman interested in the matter. This bill in the rough received the endorsement of your committee, and we insert a copy of it here for future reference.

Care and Maintenance of Epileptics.

There shall be appointed by the Governor in July, 1905, a commission of six persons to be known as A Commission to Provide for Epileptics, two members shall be appointed for one year each, two for two years each and three for three years each, and annually thereafter in July, two members shall be appointed annually for three years to fill vacancies as they occur, and in case of resignation or death the Governor shall fill vacancies so caused at his pleasure, the members of this Commission to serve without remuneration other than for their actual expenses as hereinafter provided.

It shall be the duty of this Commission to ascertain what is the most practical plan to adopt for the care of those belonging to this state afflicted with epilepsy in any of its forms and conditions, looking towards the most humane and curative results and to report January 1st, 1906, on or before, their conclusions to the Governor, and then if their report is unanimous and meets with his approval, the sum of Fifty Thousand Dollars (\$50,000) shall be, and hereby is appropriated toward carrying out their plans and locating a site, and building thereon such buildings as the said Commission with the approval of the Governor may think necessary but an amount not to exceed Thirty Thousand Dollars (\$30,000) shall be put into the site and buildings until such further development shall show the necessity of increased accommodations.

This Commission when appointed shall organize and adopt such rules and regulations as may seem to them necessary, and arrange all the details for the management and equipment of an Epileptic Institution, the name by which it shall be designated, the terms upon which patients shall be admitted, and provide what seems to them the best treatment and employment of its inmates, and shall stand charged with the responsibility therefor, and shall receive from the State Treasurer the amount each one may incur in actual expense and no

more for his or her personal services, upon the presentation of a proper voucher for the same sworn to before the Comptroller or his assistants.

This bill was referred to the committee on humane institutions which held a hearing thereon, on March 16th, at the Capitol, and listened to Morris C. Webster, Esq., Building and Loan Commissioner, the author of the bill. Drs. K. A. Down and V. K. Hallock of the original committee (which has not yet been discharged) and Dr. MAX MAILHOUSE of both committees, were present and spoke in advocacy of the project. The only opposition was expressed in the view that it was a new departure and that the inmates would all be laid charges upon the state. Thus far no report has been made to the assembly but from conversations held with various members of the committee on humane institutions we believe that a recommendation will be made that a commission be appointed to investigate the matter and report to the next general assembly.

In view of these facts, it is recommended that a special committee be appointed to confer with the committee on Public Policy and Legislation and to continue to advocate such measures before the state legislature until a colony is finally established.

Respectfully submitted,

A. R. DIEFENDORF,

MAX MAILHOUSE, Secretary.

The President: You have heard the report of the committee. What is your pleasure in regard to it? Is there any action to be taken in regard to the report of this committee?

A Member: I move it be accepted.

The President: They make a very interesting recommendation of considerable importance. I think it ought to be considered.

Dr. Tuttle: Mr. President, I would like to move that inasmuch as the previous treasurer has not been discharged, that the previous committee and the present be empowered to continue the work and constitute a single committee to continue the work.

The President: Is the motion seconded? Motion seconded. Will you discuss it? Those in favor please say *aye*. Contrary, *no*. It is a vote. That committee will consist of Drs. Mailhouse, Dieffendorf, Brown and Hallock, with the President, whenever he may be.

The President: Is the Treasurer ready to report?

The Treasurer: Yes, sir.

The President: You will listen to the report of Dr. Knight.

REPORT OF TREASURER.

To the President and Fellows of the Connecticut Medical Society:

As Treasurer I present the following report of the business of the Society for the year ended May 24, 1905:

Receipts.

Cash received from the County Clerks

Hartford County	\$372 13
New Haven County	435 15
Fairfield County	230 42
New London County	149 02
Middlesex County	34 56
Windham County	63 67
Litchfield County	118 48
Tolland County	27 56

Total receipts from taxes.	\$1,480 87
Balance from old account.	1,864 51

Total, \$2,345 38

Expenses.

Proceedings: printing, binding, distributing, &c.	\$1,079 38
Postage.	35 15
Printing, stationery, &c.	81 47
Stenographer.	50 00
Committee to nominate physician to the Hotel.	14 00
Committee on New Charter.	26 75
Salary of Treasurer.	25 00
Salary of Secretary.	110 00
Expenses of Secretary.	6 55
Total expenses,	\$1,459 90
Balance to new account,	883 48
Total,	\$2,343 38

Arrears in Tax Laid May 23, 1904.

Hartford County.	\$ 55 00
New Haven County.	215 00
Fairfield County.	55 00
New London County.	15 00
Middlesex County.	None
Windham County.	25 00
Litchfield County.	30 00
Tolland County.	5 00

Total amount in arrears,

\$400 00

Income has decreased and expenses have increased, but the treasury has a little more than held its own and I was able to report a slight increase in the comfortable surplus of last year. In view of the constantly increasing expenses and the special increase that will come from the absence of income from exhibitors the Treasurer would recommend a tax of \$3.00 per member for the coming year.

Respectfully presented,

W. W. KNIGHT, Treasurer.

The Treasurer: The expenses include nearly all the bills contracted during the year, with the exception of one contracted by the committee on matters of professional interest, and possibly one other bill. The two together will perhaps amount to fifty dollars. Next year the expenses of the society will be larger, the society at the last meeting having voted to dispense with the exhibitors and consequently to dispense with the income received from them. The expense of the meeting this year, the committee on arrangements have told me, will be about \$180. The society therefore would have to provide an increase of income sufficient to meet at least that amount, and it is very likely that other expenses will be increased to a certain extent. This year the expenses have been about the same as last year and the income about the same. The Treasurer would recommend that a tax of three dollars be laid for the coming year.

The President: You have heard the report of the Treasurer. The next course is for it to be left to an auditing committee consisting of Drs. P. G. Graves and F. S. Smith.

The question comes, therefore, upon the recommendation of the committee on this tax of three dollars. Does the society vote to accept the recommendation of the committee, that the annual tax be three dollars? Does anybody make that motion?

Dr. Rodman: I move the tax be laid at three dollars for the ensuing year. Motion seconded.

The President: Moved and seconded that the annual tax for the coming year be three dollars. Any discussion? Those in favor please say aye. Contrary, no. It is a vote.

The Report of the Committee on County Roadres, Dr. E. O. Winship, Dr. Amos Avery and Dr. W. S. Richards. Are they ready to report?

The Secretary: I have the report. I haven't been

able to hand it to them, because I haven't been able to find them. I will read it.

The President: The Secretary will read it.

The Secretary: New Haven County desires that the resignation of Paul Norwood be accepted, and Middlesex County desires that the dues of Karl Mathewson be remitted. I move that these requests be granted, and that this resignation be accepted and the dues remitted.

A Member: I would second the motion.

The President: Are you ready to speak upon that motion? Those in favor please say aye. Contrary no. It is a vote.

Report of the Nominating Committee: The election of officers and delegates goes over until tomorrow.

Is the Committee to Nominate Essayists on the Progress of Medicine and Surgery ready to report? No report.

The President: The Committee to nominate a physician for the Retreat for the Insane.

The Secretary: That is abolished by action of the General Assembly.

INSTITUTE FOR SENATE JOINT RESOLUTION NO. 341
AMENDING THE CHARTER OF THE PRESIDENT
AND DIRECTORS OF THE RETREAT
FOR THE INSANE.

Resolved by this Assembly:

Section 1. That the name of the corporation hitherto incorporated by the general assembly of this state by the name and style of "The President and Directors of the Retreat for the Insane" be and the same is hereby changed to "The President and Directors of the Hartford Retreat."

Sec. 2. So much of section four of the charter hitherto granted to said corporation as requires that a non-

ination by a committee appointed by "the medical convention," or by the Connecticut Medical Society, shall be made before any election of a physician for the retreat, is hereby repealed.

Sec. 3. From and after the passage of this resolution, a physician for the Retreat may be elected by the board of directors of said corporation to fill any vacancy in said office, and the person so elected may hold his office until death, resignation, incapacity, or removal from office by vote of said board of directors.

Sec. 4. This resolution shall become operative if accepted by the board of directors of said corporation.

Approved, March 22, 1905.

STATE OF CONNECTICUT,)
OFFICE OF THE SECRETARY,) 88.

I, THEODORE BODENWEIN, Secretary of the State of Connecticut, and keeper of the seal thereof, and of the original record of the Acts and Resolutions of the General Assembly of said State, DO HEREBY CERTIFY that I have compared the annexed copy of the Resolution Amending the Charter of the President and Directors of the Retreat for the Insane with the original record of the same now remaining in this office, and have found the said copy to be a correct and complete transcript thereof.

AND I FURTHER CERTIFY, that the said original record is a public record of the said State of Connecticut, now remaining in this office.



In Testimony Whereof, I have hereunto set my hand and affixed the Seal of said State, at Hartford, this First day of May, 1905.

THEODORE BODENWEIN,

Secretary.

The President: The Committee on Publication and Business is before you.

Regarding the question of publication, there is a point, I think which ought to be borne in mind, that if a county society wishes to have a paper which is read before it, referred to the committee on publications, it must do so formally. It doesn't do simply to have the report of a paper; they must send the paper to the secretary of the state society, for the committee on publications to look over and see if it is a proper one to print. That has been omitted in several instances and a little of hard feeling has occurred in consequence. I want to insist that the Secretary shall understand that. To be sure, in the new constitution and by laws they have got that down pretty fine, and probably it will not need to be spoken of again.

Is the Committee on Honorary Members and Degrees ready to report? Drs. J. W. Wright, F. F. Gildersleeve, and H. S. Fuller.

Dr. Gildersleeve: Mr. President, the chairman of the Committee, Dr. Wright, does not seem to be present, but in a letter which I received from him some time ago and of which Dr. Fuller also had a copy, he spoke of recommending (and we fell in favor of those recommendations) the names of Dr. Morris H. Richardson, I think of Boston, and Dr. William T. Ball, of New York. Possibly if Dr. Wright comes in a little later we could make that report a little fuller.

The President: The committee have two names referred to them from last year, which we can act on this year. We cannot act on names proposed this year, until next year, but there were two names proposed last year—Drs. Sternberg and Dedefeld.

Dr. Gildersleeve: It is probably understood that those came before the society, having been acted upon by the previous committee. We don't have anything to do with those. These are simply new nominations.

The President: It is usually the way they recommended the nominations of the previous year.

Dr. Gildersleeve: Mr. President, if you will follow it up in a minute or two, I will confer with Dr. Fuller.

Dr. Lindley: Mr. Chairman, are the names which were proposed last year voted upon at this meeting or at the convention?

The President: They came before the Fellows.

Dr. Lindley: I am so pleased to vote them. Motion seconded.

The President: It is moved and seconded that we proceed to the election of the honorary members who were proposed last year, and told over according to the rule. Those names are Dr. George M. Sternberg, of Washington, D.C., and Dr. Francis Deland, of New York, Professor of the Practice of Medicine in Columbia University. How is this nomination?

The Secretary: Unanimally by ballot.

Dr. Lindley: I move the Secretary be directed to cast one ballot for these two nominees. Motion seconded.

The President: It is moved and seconded that the Secretary be instructed to cast one ballot for the two names mentioned for the honorary membership. Those in favor say *aye*; contrary, *no*.

The Secretary: The Secretary casts a ballot in favor of their election.

The President: Dr. George M. Sternberg and Francis Deland are elected honorary members of the Society.

Report of the Committee on Medical Examinations. Drs. Barber, Feltz, Fuller, Garlick, Cole.

REPORT OF THE COMMITTEE ON MEDICAL EXAMINATIONS.

To the President and Fellows of the Connecticut Medical Society:

In behalf of the Committee on Medical Examinations I submit herewith a synopsis of the twelfth annual report

covering the work of the Committee for the year.

The Committee has had six meetings and in accordance with the law has held three examinations, each extending throughout two days. We have examined nine (9) persons and out of this number have found qualified seventy-nine or 75.6 per cent. (twenty-three) — 23.4 per cent. were disqualified and to these certificates were refused. The number examined this year is eighteen in excess of last year and seven in excess of the year before.

Of the candidates examined, one presented himself for his fifth trial, three (3) for a third and eleven (11) for a second trial. In consequence, this number of rejections, viz., twenty-three, represents but fourteen individuals and thus the total number of different persons examined was but seventy-six. The twenty-three rejections represented eight different Medical Schools, of which the State of Maryland is sponsor for four. The Baltimore Medical College leads the class with seven, University of Naples next with four, Physicians and Surgeons, Boston three, University of Vermont three, Physicians and Surgeons, Baltimore two, Maryland Medical College two, University of Maryland and Yale each one.

One candidate, Gustavo Testa of Waterbury, a graduate of the University of Naples, has been granted a certificate by a committee of another society after having made two signal failures before our committee. Concerning this case the Report of the State Board of Health, 1905, reads as follows:

The Secretary brought to the notice of the Board the following facts: Dr. Gustavo Testa, claiming to be a graduate of an Italian medical school, presented himself to the examining committee of the Connecticut Medical Society to be examined, if qualified for registration, as a medical practitioner. Dr. Testa had previously failed to pass an examination by the same committee. The committee again found him not qualified.

This last examination was on the 12th of July. A few

days after, Dr. Tosta presented at the office of the Secretary of the Board a certificate signed by the examining committee of the Connecticut Medical Eclectic Association, declaring that Dr. Tosta was qualified. The Eclectic Committee had not examined him, but had accepted the examination of the examining board of another State. The certificate of the Eclectic Committee was also dated the 12th of July, the same day as that upon which he was found not qualified by the committee of the Connecticut Medical Society. On motion it was

Resolved, That these facts be published in the annual report of the State Board of Health.

During this year we have examined eleven in midwifery alone and granted certificates to five.

There are at present 1,715 registered practitioners in the state which is one hundred more than last year and one to each 276.9 of the population, based on an estimated census of this year. Of these, 778 are members of the Connecticut Medical Society, sixty-two of the Connecticut Homoeopathic Medical Society, thirty-two of the Connecticut Eclectic Medical Society. That is, there are more medical men in this state, without medical affiliation of any kind than there are connected with the chartered societies. What does this indicate?

The committee is more and more impressed each year with the manifest lack of preliminary education shown by candidates. The work in English by an astonishing number of applicants shows that many medical colleges do not hold rigidly to their entrance requirements as published in their catalogues. There are now 161 Medical Colleges in this country of which nearly 50 per cent. are insufficiently endowed to be self-sustaining and whose very existence depends upon their matriculating a certain number of students each year.

There are to-day 25,178 medical students in the country and between 7,000 and 8,000 are graduated annually; this number with about 500 physicians emigrating to this country each year makes an appalling total, knock-

ing at the door of an admittedly over-crowded profession.

I find that in the United States the ratio of physicians to the population is greater than in any European country. How must this condition be honestly and fairly met?

We must look not only to the united effort and pressure of the State Medical Examining Boards but to the Medical School faculties as well, in whose hands is the power to increase the standards and hence to improve the quality of medical graduates. When the entrance requirements to the various Medical Schools are uniform, sufficiently high, and maintained unequivocally, and when four full years of nine months each are devoted to bona fide medical study and the hours given to each study apportioned as suggested by the National Confederation of State Medical Examining and Licensing Boards, a section of the American Medical Association, much of the apprehension now felt on all sides will be relieved and the future provided for. A diminished but sufficient quantity of physicians and an improved quality should result and commercialism in medicine be reduced to a minimum.

The Committee hopes to have in your hands within a few weeks a booklet such as is published by the examining boards of other states, but which up to this time has not been furnished from this state. The booklet will contain extracts from some of the previous reports; a copy of the Medical Practice Act as amended, which has never been published in a complete form; also, a short digest of the medical practice acts in our neighboring states and a list, as nearly complete as possible, of all registered practitioners in Connecticut, with their addresses, the institution from which each was graduated and the date of graduation, the date of registration and some other details. Such a list has never been published.

In February Dr. Garlick of the committee and the sec-

retary attended the meeting in Boston of the New England Confederation of State Medical Examining and Licensing Boards. Dr. Wright of Bridgeport a former member of our committee presided. Topics relative to reciprocity and interstate endorsement occupied almost the entire time of the confederation. Apparently the claim for reciprocity between state licentiates has subsided. This was evidenced by an almost unanimous negative vote upon a resolution for general reciprocity between New England States. Your committee must still endorse as eminently applicable to Connecticut as well, the statement made by Dr. Godfrey of the New Jersey State Board of Medical Examiners, who says:

Were such a system of reciprocity adopted, it would involve endorsing all the licentiates of reciprocating States, the good with the bad. It would mean, therefore, endorsement on the omnibus plan, since all the licentiates of a State stand on an equal footing. The adjoining States, he adds, are too populous and too overwhelming in the number of the physicians for compulsory reciprocity not to prove detrimental to New Jersey. Moreover, he says, the influx of physicians for summer practice along the coast, in the mountains, by the lakes, and at the suburban resorts would make that system of endorsement still more injurious.

Formerly the itinerant and advertising physicians were quacks who had usurped a medical degree and perhaps stolen a few formulae from the corner druggstore. But, at present, we find men of good medical knowledge, graduates of our best medical colleges so far forgetting their obligations to honesty and ethics as to advertise impossible cures and practise absurd and reprehensible methods. Were reciprocity established, many more such blurrants would gain admittance to all the states thus exchanging, whereas the necessity of passing an examination and the paying of a fee is an obstacle to them.

With this year the term of Dr. Calk as a member of the committee expires. Dr. Calk has given generously

of his time and with untiring energy has helped to push forward work throughout the several years in which he has so faithfully served.

Respectfully submitted,

CHARLES A. TUTTLE, Secretary.

Appended is a list of the successful candidates of the past year, a set of rules which are used in governing the examinations and a set of questions asked at the last examination:

Candidates Examined and Found Qualified July 12th and 13th, 1904.

- Eddy, G. M., University of Vermont, 1904.
 Payne, J., Balt. Med., 1904.
 Bonagoe, F. J., Yale, 1904.
 Spencer, E. C., Woman's Med., Pa., 1903.
 Gibner, H. C., Yale, 1903.
 Liffell, E. G., P. & S. (N. Y.), 1904.
 Sprague, C. H., P. & S. (N. Y.), 1904.
 Rooney, J. G., Balt. Med., 1903.
 Smith, E. J., P. & S. (N. Y.), 1904.
 Lyon, T. W., Yale, 1903.
 Allen, H. S., Yale, 1904.
 Hurst, J. H., Yale, 1904.
 Pratt, N. T., Yale, 1904.
 Lewis, D. M., Johns Hopkins, 1904.
 Hunt, J. W., Yale, 1904.
 Beck, F. G., Yale, 1903.
 Cautle, H. C., Univ. of Ver., 1903.
 Smith, J. P., Yale, 1904.
 Spier, S. L., Yale, 1903.
 Parker, T., Yale, 1904.
 Hochkiss, E. A., McGill, 1904.
 O'Neill, Jeff., 1904.
 Dilox, J. H., Yale, 1904.
 Halsey, R. H., P. & S. (N. Y.), 1900.
 Whittemore, E. R., P. & S. (N. Y.), 1902.
 Parker, E. D., P. & S. (N. Y.), 1894.
 Allyn, G. S., Univ. of Penn., 1903.

- Clifton, H. C., Univ. of Penn., 1901.
 Dool, E. T., P. & S., (N. Y.), 1904.
 Fitch, R. E., Cornell, 1904.
 Bullock, M. J., Cornell, 1904.
 Collins, W., Yale, 1904.
 Goodwin, P. B., P. & S., (N. Y.), 1904.
 Guley, M. D., P. & S., (N. Y.), 1904.
 Ogley, C., McGill, 1905.
 Hatcher, J. J., P. & S., (N. Y.), 1904.
 Stockwell, W. M., Univ. of Pa., 1904.
 Swift, P. P., Univ. & Bell, 1904.
 Barrett, W. J., Md. Med., 1904.

November 9th and 10th, 1904.

- Brody, J., P. & S., (N. Y.), 1904.
 Guber, J. H., Univ. of Md., 1904.
 Tiernan, R. T., Yale, 1904.
 Mix, P. M., Cornell, 1903.
 Stevens, H. G., Balt. Med., 1904.
 Visslerhin, G., Naples, 1901.
 Wordin, J. B., Dartmouth, 1900.
 Robinson, W. L., Yale, 1903.
 Standish, F. B., Yale, 1903.
 Layshin, J. P., Yale, 1903.
 Whitney, A. F., Univ. of Vet., 1903.
 Shaw, B. C., Tufts, 1903.

March 14th and 15th, 1905.

- Martino, T., Naples, 1901.
 Hancy, J. M., P. & S., (Balt.), 1904.
 Dumas, J. B., Yale, 1904.
 Arnold, H. S., Yale, 1903.
 Wilson, J. C., Univ. of Vet., 1904.
 Ryder, D. R., Univ. of Vet., 1904.
 Polgrock, O. W., Univ. of Vet., 1904.
 Sullivan, E. F., Univ. of Vet., 1904.
 Kane, J. H., Md. Med., 1904.
 Smiley, Univ. of Buffalo, 1900.
 Allen, F. H., Harvard, 1903.
 Gilmore, J. L., Yale, 1904.

- Garvin, A. H., Yale, 1903.
Fitch, F. T., Yale, 1904.
Cifaldi, A., L. I. Coll. Hosp., 1904.
Pfeischner, E. C., Yale, 1904.
DeLaney, W. J., L. I. Coll. Hosp., 1903.
Wheatley, L. F., Tufts, 1903.
Travis, C. H., Johns Hopkins, 1903.
Loew, H. K., P. & S., (N. Y.), 1902.

Rules For Examination.

1. Examinations will be held on the second Tuesday of March, July and November, at the City Hall, New Haven, beginning at 9:30 a. m., and lasting two days, closing at 4:30 p. m. of the second day.

2. Examinations will be conducted in writing in the English language.

3. Examinations for general practice consist of ten questions in each of the following branches:

1. Anatomy. 2. Surgery. 3. Materia Medica, including therapeutics. 4. Practice, including pathology and diagnosis. 5. Obstetrics, including gynecology. 6. Physiology. 7. Medical Chemistry and hygiene.

4. In order to be admitted to practice, the applicant must obtain a general average of 75 per cent. In no branch shall his percentage be less than 60, and in Practice, Obstetrics and Surgery the minimum requirement will be 65 per cent.

5. Examination fee \$15.00, payable in advance on the first day of examination.

6. Candidates once rejected must pay full fee on another trial.

7. All candidates must be graduates of some reputable Medical College and must present their diplomas (or a certificate from the Dean of the Medical College) for inspection, to the Secretary of the Board at the opening of the session. Those having Bachelor's degrees in Arts or Sciences will please so specify.

8. Each candidate must present his photograph as a means of identification. This will be retained and kept on file by the Secretary.

9. Formal application (blank enclosed) must be made to the Secretary at least five days before the date of the examination.

10. Questions used at some former examinations will be found in the yearly Proceedings of the Connecticut Medical Society—the Board is unable to supply copies.

11. A license or an examination in another state is not accepted by this Board. All candidates must undergo the regular examination.

Digests of the Laws of 1902-1903.

a. No person shall, for compensation, gain or reward, received or expected, treat, operate or prescribe, for any injury, deformity, ailment, or disease, actual or imaginary, of another person, nor practice surgery or midwifery, until he has obtained a certificate of registration, and then only in the kind or branch of practice stated in said certificate.

b. No person shall obtain a certificate of registration until he has passed a satisfactory examination before one of the examining boards appointed for the purpose, nor until he has filed duplicate certificates signed by a majority of said examining board, stating that they have found him qualified to practice either medicine, surgery or midwifery, nor until he has filed duplicate statements subscribed and sworn to by him upon blanks furnished, giving his name, age, place of birth and present residence, stating of what medical college he is a graduate, and the date of such graduation, together with such other information as shall be required. No person shall be eligible to said examination until he presents to the board, by whom he shall be examined, satisfactory evidence that he has received a diploma from some legally incorporated medical college. Any person passing such examination and filing said certificates and statement

shall receive from the State Board of Health, upon payment of two dollars, a certificate of registration, which shall state that the person named has been found qualified so to practice.

c. An applicant rejected by an examining board is eligible to re-examination at any subsequent regular meeting of the Board.

Rules for Conducting Examinations.

First. Help of every kind must be removed from the reach and sight of the candidate. Any candidate detected trying to give or obtain aid may be instantly dismissed from the room, and his or her paper for the entire work canceled.

Second. Questions must be given out and answers collected punctually at the time specified for that section.

Third. If the candidate withdraws himself or herself without permission, from the sight of the examiner, his or her examination shall be closed.

Fourth. All examinations shall be in writing. Pens, blotters, paper and ink will be supplied by the Secretary.

Fifth. The examination shall continue two days, the sessions of the first day being from nine-thirty to eleven, eleven to one, two to four, four to six, respectively; the sessions of the second day being the same, but closing at four-thirty instead of six o'clock.

Examinations in Midwifery.

1. Examinations in Midwifery will be held at the same time and place as for General Practice, and under the same rules.

2. Applicants to practice Midwifery will be examined in Midwifery only and must obtain a marking of 75 per cent.

3. Examinations will be in writing; but may be taken in the language of the applicant. The applicant to furnish and pay an interpreter acceptable to the Board.

4. The examination fee will be \$10.00 and is payable at the time of taking the examination.

It is unlawful to practice in this State while waiting for an examination.

No temporary or provisional certificates are given.

Questions Used At The July Examinations

Chemistry and Hygiene.

(One and one-half Hours.)

1. What is hemoglobin? Name some of its properties and its functions? Give test.

2. What measures of protection should the health officers use in enteric-annual fevers?

3. What do we mean by the group of chemical substances known as the ethers?

4. How best can organisms be excluded from milk and their multiplication be prevented?

5. What are some of the normal constituents of urine? Where is urea formed, and where else in the body is it found? How would you test urine for blood?

6. What is the composition of the various calculi of the body?

7. Name the principal derivatives of the hydrocarbons.

8. What is the cause of lactic acid in the stomach and how can it be separated from hydrochloric acid?

9. Which is the most poisonous compound of arsenic? Give the symptoms of arsenical poisoning? In what manner does it prove poisonous? What is the treatment?

10. How and where do the bile pigments originate?

Physiology.

(One and one-half Hours.)

1. (a) State the average specific gravity of the blood; (b) state some causes of variation in specific gravity; (c)

its reaction, and (d) the proportion its total amount bears to the weight of the adult human male.

2. (a) What is the difference between medullated and non-medullated nerve fibers? (b) Define afferent, efferent, trophic, inhibitory motor, and vasomotor nerve fiber.

3. (a) Name five of the best fat producing foods, in the order of their value as such; (b) name five of the nitrogenous in the order of their nutritive value; (c) name four classes of non-nitrogenous foods, in the order of their nutritive value.

4. What nerves control the action of the heart?

5. Give the physiological functions of the liver.

6. Discriminate between the corpus luteum of pregnancy and the corpus luteum of menstruation.

7. Define and give examples of: (1) reflex action; (2) protoplasm; (3) neuron; (4) neuroglia; (5) osmosis; (6) ovulation; (7) leukocyte; (8) diastole; (9) emmetropia; (10) astigmatism.

8. Name the cranial nerves, and state whether motor, sensory or of special sensation.

9. What is meant by muscular coordination and upon what does it depend?

10. (a) What do you mean by the temperature of the body? (b) What are some of the causes of variations in body temperature?

Practice, Pathology and Diagnosis.

(One and one-half Hours.)

1. Describe a case of mitral insufficiency and give its sequelae.

2. Give the method for the detection of the tubercle bacillus in the sputum.

3. Differentiate between pyelitis and cystitis.

4. Give the pathology and symptoms of atrophic cirrhosis of the liver.

5. Give the symptoms and course of broncho-pneumonia in an infant.

6. Describe a case of lead poisoning and give its treatment.

7. What are the causes and symptoms of obstruction of the ductus communis chole-dochus?

8. Describe a case of chlorosis and give the changes in the blood.

9. Give the causes and symptoms of pulmonary edema.

10. Give the period of incubation of the exanthemata.

Surgery.

(Two Hours.)

1. Describe the inflammatory changes taking place in the mesentery of a curarized frog.

2. Describe the process of repair in well coaptated simple fractures of a long bone.

3. Give the secondary symptoms of acquired syphilis.

4. Symptoms and treatment of acute otitis media.

5. Describe the operation of thoracotomy (resection of ribs) and give the indications for the same.

6. How would you differentiate appendicitis from (a) right salpingitis; (b) ulcerating carcinoma of caecum; (c) typhoid perforation; (d) renal colic; (e) tuberculosis of appendix of caecum?

7. In a case of tuberculosis of one kidney, how would you determine the competency of the other by (a) freezing point of the blood serum; (b) phloridzin test; (c) methylene blue test? Give details.

8. Diagnosis and treatment of acute gonorrheal arthritis.

9. Give pathology, symptoms and treatment of a sprained ankle.

10. In subglenoid dislocation of the humerus, what

structures are (a) necessarily injured and (b) what may be injured?

Anatomy.

(Two Hours.)

1. What are the characteristics of the cervical vertebrae?
2. (a) Mention bones of carpus in order; (b) also bones of tarsus; make diagram.
3. (a) Describe the circle of Willis; (b) mention terminal branches of collic axis.
4. Origin, course and distribution of the pneumogastric nerve.
5. Bound the axilla, and name the contents of the axillary space.
6. Describe and give the elements of a ginglymus joint.
7. Give general scheme of triangles of neck, and make diagram.
8. Where are Peyer's glands found? What is their size and use?
9. Mention and locate or bound five lobes of brain.
10. Define term animal cell, and differentiate terms neuron, osteoblast, chondroblast, myoblast, leukocyte and spermatozoon.

Materia Medica and Therapeutics.

(Two Hours.)

1. Give the physiological action of chloral hydrate and its toxicology.
2. Name three methods of introducing mercurials in treating secondary syphilis and give the dose of the preparations used.
3. Contrast the action of cocaine and amyl nitrite upon the circulatory, respiratory and nervous system.
4. Name one physiological antagonist to the following

drugs: pilocarpine, digitalis, strychnine, atropine, aconite.

5. Give the official name, composition and therapeutic uses of Dover's Powder.

6. Give the treatment of the varieties of intestinal worms.

7. Give the physiological action of sodium salicylate.

8. What are the therapeutic uses of silver nitrate and what are its dangers?

9. What effect do the following drugs have upon the circulatory system; *veratrum viride*, *digitalis*, *belladonna*?

10. Give the therapeutic uses of arsenic.

Obstetrics and Gynecology.

(Two Hours.)

1. Define *placenta previa*. Give classification, diagnosis, treatment; (a) during pregnancy; (b) during labor.

2. Outline your treatment for inevitable abortion.

3. Describe *axis-traction forceps*. When are they used? What forces are they capable of exerting?

4. What are the indications for hysterorrhaphy? Describe briefly the operation. What are its advantages?

5. Describe the varieties of fibroids. Give the symptoms and physical signs of each and state from what fibroids must be differentiated.

6. Describe briefly the two varieties of hysterectomy. Name the advantages one may have over the other.

7. Define and differentiate pelvic hematocoele and hematoma.

8. Give your method of treatment in third stage of labor. Give Crede's method of expulsion of placenta.

9. What is a urethral caruncle? Why is it so painful? How would you treat it?

18. What conditions necessitate the use of reversed forceps? Give technique.

The President: You have heard the report of the Committee on Medical Examinations. What action will you take upon it?

Dr. Miles: I move it be accepted. Motion seconded.

The President: Moved and seconded that it be accepted and take the usual course of printing. If there is no objection, it will take the usual course.

Has Dr. Bacon any report to make of the Committee on Arrangements?

Dr. Bacon: Nothing except that invitation which I spoke to you about.

The President: The Committee on Arrangements reports that Mr. Wells invites the Society to visit his farm at Bldgeside, at 5 p. m. to-morrow. The point of interest at Mr. Wells' farm is one of advanced sanitary arrangements, I believe, and he would like to show it to the members of the Society if enough of them feel disposed to go. He wants to know whether at least twelve will signify their intention of going, so that he can secure a car to take you out there. Those who wish to go will please notify the chairman, Dr. Bacon, and he will see that the arrangement is made.

Is the auditing committee ready to report?

Hartford, Conn., May 24, 1905.

This is to certify that I have examined the accounts of the Treasurer of the Society for the year ending this day, and found them correct.

Signed,

FRED SUMNER SMITH,

Of the Auditing Committee.

The Secretary: I move that the report of the Treasurer be accepted. Motion seconded.

The President: Moved and seconded that it be ac-

cepted. Those in favor say *aye*; contrary *no*. It is a vote.

The Committee to Nominate Physician to the Retreat for the Insane passed out of existence by reason of the act of the legislation in abolishing their functions and the necessity of that committee—but they have made a report to the President, and, as my address says, a meeting was called in response to it. I do not know whether you care to hear a verbal report from Dr. Swaine, the president of that committee, or not. At any rate, it seems to me entirely in order that their report should be spread upon the records. I don't think Dr. Swain wants to read the whole report.

Dr. Swain: Unless it is desired.

The President: Just as it is the desire of the Fellows in regard to that. Will they hear a condensed report, or will they have the whole report?

A Member: Give it all.

The President: The call is for the whole report, do I understand, or for a condensed and verbal report?

The chair will rule that inasmuch as the thing has been before the Society one way and another, it is not necessary to take up the time to read the whole report, but we would like to know the gist of the matter from the chairman of that committee, and I will ask Dr. Swain if he will kindly report the action of that committee.

Dr. Swain: Mr. President and Fellows of the Society. Dr. Carmalt has just said the matter has been brought to the County Society by a letter that was sent from the Litchfield County Association, so that it seems to me that most of the Fellows are familiar with the business that the Committee did. The salient points to that which led up to our first letter were these—that the committee of the Retreat here in Hartford became anxious to have a Superintendent to take the place of Dr. Stearns, who was to pass in his resignation. They proceeded to take the necessary steps to inquire into the

qualifications of a man whom they thought would be suitable to their wishes and desires, and found a man, corresponded with him, and had more or less personal interviews with him. They decided to nominate him at the same meeting, and immediately following a given meeting of the directors warned for that purpose there was published in the papers simultaneously (The Hartford papers) the statement that Dr. Stearns had resigned and his successor had been appointed. That had all come to pass before your committee was at all acquainted with the fact that there was a vacancy existing in the superintendency of the Retreat. The committee were notified at the same time that the papers were, of the action of the directors of the Retreat and met together subsequent to that notification by the directors, who intimated to us that it was the custom of your committee to receive suggestions from them and then acquiesce in the suggestions presented by the directors to the Retreat, when the election would be considered duly authorized and the new superintendent installed. We were, in the position that you put us as a committee, we were a nominating committee, a committee to nominate a physician to the Retreat for the Insane. It was told us as a matter of history, and was illustrated in an act of the directors, that we were not a nominating committee—we were to be an acquiescing committee. In fact, it was so stated to us by the president of the board. In so many words, we were told that on both occasions when a committee of your Society in the past had ventured to differ with the directors of the Retreat in their suggestions that the thing had fallen through. On one occasion the physician that your committee had nominated did not stay but a year, and on another occasion, when your committee ventured to suggest a name, it fell through entirely, and that name was not nominated but the original name suggested by the committee from the Retreat was nominated. And your committee respectfully heard the suggestions of the committee from the Board of Direc-

tors of the Retreat, asked questions and then went into executive session and took such action as you will find chronologically in our report. It seemed to us that we had in our State a man abundantly qualified to act as superintendent, that we did not have to go out of the State and on the whole we did not quite like the feeling that we must acquiesce. We were told that in case the committee did not see fit to acquiesce, that in all probability a petition would be sent to the Legislature having in mind the abolition of the tie which existed, the bond, between the State Society and the Retreat. History has already related to you in the address of the President that that has taken place, so that we do not need to go into details and dwell upon unnecessary matters. Your committee ventured in the most emphatic but polite way that we could, that we did not agree with the directors of the Retreat, and asked them to reconsider. They cheerfully met and reconsidered and voted unanimously to leave the matter as it was. Then everything was in statu quo; your committee was absolutely powerless to do more than it had done, and the Retreat could do no more than it had done. Subsequent to your action, before another letter could be sent to the directors of the Retreat, Dr. Stearns withdrew his resignation and the gentleman nominated was appointed assistant superintendent, an avenue which, of course, was open to them from the beginning. It shows to you how useless it was when it was the wish of anyone else to differ with the committee, and the matter was left in that way until such action could be taken by the Legislature to abolish this tie or bond which united this state society to the retreat. And then Dr. Stearns again presented his resignation and, without any power on our part to interfere, the gentleman went in. Please let it be understood, gentlemen, that your committee have nothing in the world against Dr. Thompson, except that we had in mind a man whom we thought was equally as good. There was nothing against Dr. Thompson himself, merely the

method that was pursued in his election. Dr. Carmalt has explained to you in his address that it was the desire of your committee to nominate officers to the Retreat for the Incense, that we should have the direction of this body as to what action we should take regarding the proposed legislation, and we tried to have a meeting of the Fellows, but failed to get a quorum. It seemed the sentiment of the gentlemen who were present at that meeting, which was sufficiently qualified to do business, it seemed their wish that we should allow such action to be taken by the board of directors of the Retreat as has been taken, and consequently no objection was interposed, and we are now no longer in a position to nominate physician to the Retreat, and that ancient tie has been dissolved. I want to say in behalf of the gentlemen who were with me in the committee that the meetings were most harmonious and eminently satisfactory to those gentlemen, if not to the Association, and their action has been thoroughly considered and abundantly coincided in by every member of the committee.

The President: Are either Drs. McDonald or Donaldson here? The only ones now to hear from are the Nominating Committee.

Is the Nominating Committee ready to report?

Dr. Lindsey: Mr. President, in the absence of any other business I would take occasion to state that yesterday the Senate voted on the vaccination bill, and voted to accept the report of the committee, so that the abolition of the present laws was not passed.

The President: It seems to me they have two days to reconsider it.

Dr. Higgins: Mr. President, the time for reconsideration is past and the bill is safe. One day only for reconsideration.

The President: From all I can understand in regard to what Dr. Higgins has said relating to the Legislature, it has been a pretty tough fight to prevent the law from

being repealed, and we owe a great deal to the members of the state society who stood up and fought it. The action of the Senate was by a very narrow majority,—only one, I believe.

We will listen to the report of the Nominating Committee if you please.

Dr McKnight: Mr. President, I will ask the clerk to read the names, as I am afraid I can't read them.

Dr. Moulton, Clerk: The committee beg to offer the following names for the various positions.

President,

EDWARD B. WELCH, Litchfield.

Vice-Presidents,

F. A. MORRELL, Windham, E. P. FLINT, Tolland.

Secretary,

W. R. STEINER, Hartford.

Treasurer,

J. B. TOWNSEND, New Haven.

Committee on Scientific Work,

GUSTAVUS ELIOT, New Haven.

E. J. McKNIGHT, Hartford,

Committee of Public Policy and Legislation,

E. J. McKNIGHT, Hartford,

C. S. RODMAN, New Haven,

H. B. HEYER, New London,

J. W. WRIGHT, Fairfield,

S. B. OVERLOCK, Windham,

ELLAS PRATT, Litchfield,

P. K. HALLOCK, Middletown,

W. L. HIGGINS, Tolland.

Committee on Honorary Members and Degrees,

O. T. OSBORNE, New Haven,

C. E. STANLEY, Middlesex,

C. C. GILDERSLEEVE, Windham.

Committee on Medical Examinations,

J. F. CALEP, to succeed himself.

For The House of Delegates American Medical Association,

W. H. CARMALT, one year to succeed Dr. Elliot, resigned.

H. L. HAMMOND, Two years.

Delegates to The Maine Medical Society,

J. B. KENT, Putnam,

P. H. INGALLS, Hartford.

Delegates to The New Hampshire Medical Society,

G. L. PORTER, Bridgeport.

C. L. BANKS, Bridgeport.

Delegates to The Vermont State Medical Society,

E. O. WINSHIP, Rockville,

F. W. HUGHES, Groton.

Delegates to The Massachusetts Medical Society,

O. C. SMITH, Hartford,

S. M. GARLICK, Bridgeport.

Delegates to The Rhode Island Medical Society,

W. H. JUDSON, Darnelton.

M. M. JOHNSON, Hartford.

Delegates to The New York State Medical Association,

C. J. FOX, Willimantic,

R. A. McDONNELL, New Haven,

J. B. KINGMAN, Middletown,

A. R. DIEFENDORF, Hartford.

Delegates to The Medical Society of New Jersey,

C. A. LINDSLEY, New Haven.

FRANK W. STEVENS, Bridgeport.

Delegates to The Medical Society of the State of Pennsylvania,

E. J. McKNIGHT, Hartford,

E. P. SWASEY, New Britain.

Dr. McKnight: I wish to state that it seemed best to the committee to nominate Dr. Welch, who was our vice-president last year, and that we should give him the honor of election. I have his letter of declination in my pocket. The committee taking the view of that fact, will place to-morrow in nomination for that vacancy, the name of N. E. Wordin, of Bridgeport.

The President: These nominations lie over until to-morrow by the rule, don't they? You have heard the report of the Nominating Committee. The nominations will lie over under the rule until to-morrow morning, when the election will take place, at nine o'clock.

A Member: Mr. Chairman, I merely ask to inquire why no delegate has been appointed for New Jersey? It has been customary heretofore to have such a delegate.

The President: It was not down on the list. Yes it was, too. Can Dr. McKnight answer that question?

Dr. McKnight: It was an oversight.

The President: The report of the Nominating Committee can be amended, or at least they can be authorized now to nominate a delegate to the New Jersey Medical Society.

Dr. McKnight: I would suggest, Mr. President, that any members of this Society who wish to go to New Jersey, notify the clerk of the committee and they will receive the nomination.

The President: The Committee will receive nominations and report to-morrow on that matter.

Miscellaneous business is now in order. Mr. Secretary is there any miscellaneous business?

The Secretary: No Sir.

The President: Has anyone any miscellaneous business to offer? If not, a motion to adjourn the meeting of the Fellows is in order. We adjourn until tomorrow at nine o'clock. There will be a meeting of the Fellows and Delegates tomorrow morning at nine o'clock to take

action on the report of the Nominating Committee and other business to be brought up. If there is no other business—

Dr. Calef: There are two members of our County Society who are very old and infirm, and it has been the custom to remit the taxes for them. This is not meant as a motion, or is it in order for me to make a motion?

The President: Dr. Calef can make the motion.

Dr. Calef: Dr. Calef makes the motion that Dr. Turner's and Dr. Bidwell's taxes, for Middlesex County, be remitted in addition to Dr. Matthewson's, Dr. Matthewson being paralyzed and on his back, and the other gentlemen being very old and out of practice.

The President: You have heard the motion of Dr. Calef. Motion seconded. Moved and seconded. Those in favor of remitting the taxes of Drs. Turner, Matthewson and Bidwell, from Middlesex County, will please signify by saying aye. Contrary, no. It is a vote.

The President: Is the Committee on President's Address ready to report? No, they will wait until tomorrow. That finishes so far as I know the business before the Fellows. The meeting stands adjourned until tomorrow morning at nine o'clock.

MEETING OF HOUSE OF DELEGATES, THURSDAY, 9.30 A.M.

The President: The meeting will please come to order. The first business is the adoption of the by-laws as they were printed, and as they were amended yesterday, by vote to lie over until this morning, and that is the first order of business.

Dr. Moulton: Mr. President, I move we adopt the by-laws as laid over from yesterday, with the corrections that were made yesterday. Motion seconded.

The President: You have heard the motion, gentlemen. Are you ready for it? Question called for. Those

in favor please say aye; contrary no. It is a vote. Under that, we are now acting under the by-laws as they are printed, and it becomes my duty to appoint the first councillors of the new House of Delegates for the new Association. I have the honor to appoint from Hartford County, Dr. George R. Shepherd; from New Haven County, Dr. Charles J. Foote; from New London County, Dr. John G. Stanton; from Fairfield County, Dr. William H. Donaldson; from Windham County, Dr. S. B. Overlook; from Litchfield County, Dr. George H. Knight; from Middlesex County, Dr. Frank K. Hallock; from Tolland County, Dr. W. L. Higgins. These now are members of the House of Delegates, along with the Fellows who are now delegates, and we are now ready to proceed to business.

The first business of the House of Delegates is to elect officers for the ensuing year. A list was presented at the meeting yesterday, under the by-laws lying over until to-day, and that is the first business of the House of Delegates to-day. What is your pleasure with regard to the election of officers?

Dr. Goodenough: I move, Mr. President, that we adopt the report of the nominating committee, and that these officers and committees, as read, be elected. Motion seconded.

The President: You have heard the motion. That is necessary to be done by ballot.

Dr. Goodenough: I move that the Secretary be instructed to cast one ballot for the officers. Motion seconded.

The President: Is there any objection to that?

A Member: Mr. President: Can we have a list of officers read?

The President: The Secretary will please read the list of the officers. Some of the members were not here yesterday, and they didn't hear them as presented by the committee. *List of officers read by Secretary.

* See p. 52.

It has been moved and seconded, and I understand there is no objection, that the Secretary be authorized to cast a ballot for these names as read. A single objection would necessitate a ballot, but anything can be done by unanimous consent. Is there any objection? Question called for.

The Secretary is authorized to cast the ballot. The Secretary casts the ballot for the names as read, and I hereby declare those officers elected.

Dr. McKnight: Mr. President, I would like to read the following letter:

"Windsor, Conn., May 23, 1905.

"Dear Doctor:

"Following an attack of rheumatism there is left neuritis, which the doctors say needs warm weather and rest to cure. To my sincere regret and on their advice, I am obliged to decline that which to me is the greatest honor of my life, the Presidency of the Connecticut State Medical Society. Yours truly, E. H. Welch."

Mr. President: I would move that Dr. Welch's resignation be accepted, and that in his place Dr. N. E. Woodlin be elected President of this Society. That is the recommendation of the Committee on Nominations, they knowing that this resignation was coming in.

Dr. Hammond: Mr. President, I second that.

The President: It is moved and seconded that Dr. Welch's resignation be accepted.

A Member: Mr. President, may I ask if that is a resignation or declination of the nomination?

The President: He has been elected; it is his resignation. Those in favor of accepting Dr. Welch's resignation please say aye; contrary no. It is a vote.

Now I understand that Dr. Woodlin is nominated as President.

Dr. Goodenough: I would move, Mr. President, that the President be empowered to cast the ballot of this

Society for Dr. Wordin as President for the coming year. Motion seconded.

Dr. Donaldson: Mr. President, I would like to ask whether that is in keeping with the new constitution which we have just adopted? I would call your attention to Chapter VI, Duties of Officers, Section 2: "In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him." Do I understand the name of Dr. Wordin is nominated for one of the Vice-Presidents?

The President: He is nominated for President.

Dr. Donaldson: I will call your attention to the section just read.

The President: The President will rule in regard to that, that applies to a time when the Fellows are not in session. This is the meeting for nomination of officers, and we are competent to act just as though no nomination had been made yesterday. It was fully understood by the Fellows that this action should be taken. The by-law which the gentleman quotes has application to resignations or declinations made in the interval between meetings, and we are competent now to do anything we choose.

Dr. Donaldson: Mr. President, I am very glad indeed to hear the first decision of our chair so wisely given, and it will stand as a precedent, and I am very glad that we have such a presiding officer to give such a decision. I shall be very glad indeed to see this action go through, but I questioned whether it was legal or not. However, I shall be very glad to sustain the ruling of the President in ruling as he did.

The President: The chair has the great pleasure of casting the ballot for our next President, Dr. N. E. Wordin, of Bridgeport, who has served the Society now for sixteen years as Secretary, and the recognition which we give him is in appreciation of good work done. The President casts the vote of the Society for President Wordin.

It has been suggested to the chair that a committee be appointed to draw up a paper on vaccination for distribution to members for use in the various counties and county associations, and for personal distribution to the public in disseminating knowledge relating to vaccination. There has been an effort to repeal the vaccination law, which came so near being carried out, that it seems to us that a crusade of education should be started again. Many have forgotten what ravages smallpox will make if we are not protected, if vaccination is not carried out, and it is well to begin a crusade of education. It has been suggested, as I say, to have this committee appointed to draw up a paper for distribution by the Committee on Legislation in the various county societies. That would entail some expense, which it is quite possible the treasurer would not be able to meet, and it is suggested that volunteer subscriptions be asked for in the different county societies, to see if we cannot raise a few dollars for this purpose, no one subscribing more than a dollar. We will soon get enough in that way to be put to use as a fund for the distribution of these pamphlets. Is it your pleasure to appoint such a committee, that such a committee be appointed, I mean? I haven't the resolution drawn up in any particular shape. I simply throw the suggestion out for some one to work up in good shape.

Dr. Goodenough: I would move that such a committee be appointed, Mr. President, by the chair. Motion seconded.

The President: The chair will have to ask permission to word that resolution in proper form when the time comes. In the meantime the chair knows pretty nearly what is wanted, and will appoint on that committee Dr. Lindsley of New Haven County, Dr. Higgins of Tolland County, Dr. McKnight of Hartford County. They have been doing noble work in the cause of vaccination, and they are familiar with the subject. They have the decisions of the courts and all that, and those are the

things which we wish to put in this pamphlet, and I think that committee will do the work better, perhaps, than a larger committee, simply to prepare that pamphlet, that is all—then the pamphlet is to be distributed under the direction of the Committee on Legislation.

Dr. Shepherd: Mr. President, can you give us any idea what amount will be required?

The President: No, I cannot. I do not believe it will be a matter of over twenty-five or thirty dollars,—a mere guess, however.

You have heard the motion and the names of the committee. Will you act upon it? Those in favor of the motion will please signify it by saying aye. Contrary no. It is a vote.

Is Dr. Overlook ready to report?

Dr. Overlook: Mr. President, the committee in the absence of the chairman, Dr. Smith, who will be here later, met yesterday, and it was not then known what the legislature would do yesterday, and inasmuch as Dr. McKnight had been active in the matter we thought it best to wait and make that report this afternoon. Then we would be able to get it into shape and know definitely what has been done. If we made a report yesterday we might make something that was not exactly fitting to what might bring forth today. So we would like to make it after Dr. Smith returns this afternoon.

The President: So far as that is concerned, if the chair recollects what was in his report (you will excuse me) the only thing that the committee had to report upon was with regard to vaccination or something of that sort, and it seems to me that this action of the Fellows now obviates the necessity of any report on that recommendation. I think that probably it is just as well to say they have no report to make.

Dr. Overlook: Mr. President, there are many things in the President's address, although he very modestly stated there was nothing but vaccination that he could say or know anything about. The visits of the State

President to the various county medical societies, this year was a new feature. I think it has never been universally done before, and in our own society it was a great help in many ways. It was not only a help at the meeting, but it has been a help in stimulating the members of the society who have been dilatory in attending. There never had been a state president at the meeting, and Dr. Carmalt was there and remained all day with us at the meeting. I am sure that the moral effect of the smaller societies has been in the right direction, and to a greater extent than any of us thought it would. And that is one of the things which in this informal way (I am not chairman of the committee) I would like to mention in the report, in addition to the formal report with regard to points like vaccination.

The President: The chair does not want to put the Fellows to the inconvenience of having another meeting to-day, while we have so much on the regular programme for the annual convention, and I do not think it wise to call them together simply to hear that report of the committee, which is the only business they would have. Now I do not want to run this thing, but I suggest that the committee be authorized and empowered to make their report in writing to the secretary at their convenience. That will answer the purpose.

A Member: And have it published in the proceedings.

Dr. Overlock: We will be very glad to do that. I am the only member of the committee present. We do want to get that report in, and if we can do that it will be perfectly satisfactory.

Dr. Moulton: I make a motion, Mr. President, carrying your suggestion, that the committee on recommendations in the President's address, be authorized to make their report in writing, and that the after report be published in the proceedings. Motion seconded.

The President: You have heard the motion. Any further remarks? If that is your wish, please signify it by saying aye; contrary no. It is a vote.

Dr. Donaldson: Mr. President, I believe the new by-laws call for the election of a chairman and a clerk of this body. Wouldn't it be well to proceed with that now?

A Member: That is referred to the Council, isn't it?

The President: No sir, that is not necessary as I remember, the Council elect their own chairman and their clerk, after they meet. We are the House of Delegates, and we have elected our officers, but the Councilors are a body of six or seven and they elect a chairman and clerk, the clerk to act when the secretary of the Society is not present. Is there any other business before the House of Delegates?

A Member: I move we adjourn.

The President: We will adjourn. The House of Delegates is adjourned, and the annual convention will meet at ten o'clock according to the rule.

The Councilors are requested to meet together.

MEETING AT THE HOUSE OF DELEGATES AT 100 THURSDAY, MAY 25.

The President: I beg to call the House of Delegates to order. All other members are invited to be present and participate. The House of Delegates have not yet reported upon a place and time of meeting for next year. That should be done. It requires a meeting of the House of Delegates to do that, and we can do it now, or, if you do not choose to do it now, we can adjourn to meet again at some other time. But it is one of the duties that we have to report at this meeting place and time of meeting for the 1906 convention. Will you move as to the time and place of meeting for the next year?

Dr. Shepherd of Hartford: Mr. President, as a resident of Hartford I am happy to say that our doors are always open to you here. If you choose to have your meeting here next year, we shall be happy to welcome you.

The President: I believe I am the only member from

New Haven here, and as I have an official position in the House of Delegates, I ask, Mr. Secretary, that you please take the chair.

Dr. Donaldson: Mr. Chairman, I would move that the next annual meeting of the Society be held at New Haven on the 24th and 25th of May, 1896. I do not mean that date, I mean the fourth Wednesday and the fourth Thursday. Motion seconded.

The President: You have heard the motion. Any remarks? Those in favor please say aye; contrary no. It is a vote.

Is there any other business before the House of Delegates?

Dr. Shepherd: Mr. President, the Secretary in his report alludes to a very important matter, and that is the preservation of the records of this society. As preserved at present I believe they are deposited in a trunk and carried about from place to place, or they were a few years ago. I do not know what arrangement may have been made, but he suggests that it might be well to have them preserved in a fire-proof safe and mentions the Hunt Memorial Building in Hartford. There has been no action taken by the Hartford Medical Society regarding this, but as one of the trustees of this building, I feel perfectly free to say that we shall be only too happy to afford you a place for a safe, if the Society should vote to have one. I feel very certain that you may deposit it here, and we will take good care of it.

The President: May I ask—Is there a safe here in the building?

Dr. Shepherd: No, there is no safe here, but if the Medical Society, The Connecticut Medical Society should purchase a safe we will be happy to afford you a place to keep it. We have no fireproof vault here.

The President: Well, that is the question.

Dr. Shepherd: I make that suggestion in response to the statement of the Secretary that it might be well to

have it deposited here. There are others here of the Society, Dr. Abrams and Dr. Howe. Dr. Howe is President of the Society. I think he will concur with me, in the statement that we will be most happy to act as custodians.

Dr. Howe: Certainly Mr. Chairman, we should be very pleased to accept the custody of any records that you choose to place in our hands. We should prefer you to bear the safe and hold the key.

The President: That is the question really, where there is a fireproof receptacle, and you cannot offer us a fireproof receptacle so far as I understand you.

Dr. Howe: No, sir.

The Secretary: Mr. President, I would like to call the attention of the gentlemen to the fact that the President in his address to the Fellows, Wednesday, alluded to the same matter, and that I suppose the committee who have in charge the recommendations of the President's address, would make a recommendation concerning that. It is possible that if we adopt the motion which Dr. Shepherd has already made, we may conflict with the other committee who may make possibly some other suggestion for the disposition of the records. And I would suggest that the matter be dropped and taken up by the committee who have that thing specially in charge. Am I right, Dr. Overlook?

Dr. Overlook: Yes.

Dr. Shepherd: Mr. President, I did not offer a motion, simply a suggestion to bring the matter up. I would be happy to offer a motion were it desirable.

The President: I think it is simply a matter for the committee who have it in charge.

A Member: Mr. President, has the committee on the President's recommendations any power to act?

The President: They were empowered to give a written report at the last meeting as to the recommendations of the President.

A Member: When will that report be made?

The President: At their convenience.

A Member: That may be a year from now.

The President: It may be. It seems to me we must trust for something.

A Member: Has the Secretary any idea of any other accommodations to offer?

The President: I was going to ask the same question, have you any idea of any other place to put the records besides here?

The Secretary: No sir. It occurred to me that the library of the State would be a good place, because the original charter of the State is there, and a large safe. It occurred to me that the Connecticut Historical Society would be a good place to put them. I was not aware that there was no safe here.

The President: Has the Connecticut Historical Society a safe for preservation, or has it a fireproof building?

The Secretary: I don't know, but I think the State Library has.

The President: Well, I think that is a matter for the committee to decide, to find out if there is a place, and make their recommendations correspondingly. They can be kept for a little while longer just as they are. They can report to the House of Delegates whenever they do meet that they have found a suitable place. That is part of their duties, I think.

Is there any other business. That committee will regard itself as being authorized to look out for a place.

REPORT OF COMMITTEE TO CONSIDER RECOMMENDATIONS IN PRESIDENT'S ADDRESS.

The Connecticut Medical Society.

Gentlemen: Your committee have considered the recommendations and suggestions made in the address of the President, and assumed that they are all such as

meet the approval of members of the Society, we would offer the following for your consideration:

1. That as the members of the Connecticut Medical Society view with surprise and alarm for the public safety, the attitude taken by a large number of the members of the State Legislature toward the vaccination law, and as we believe that years of safety through the benefits of vaccination have made men forget the terrors of smallpox, it is our duty through the officers of the Society, or a special committee, to propagate a campaign of education as to what history and statistics teach concerning the beneficent results of vaccination.

2. That we accept the offer of Dr. George R. Shepherd to care for the two volumes of early records of the Society in the safe deposit vaults of the Connecticut Mutual Life Insurance Co., and direct the Secretary to so deposit the volumes properly sealed and marked with the name of the Society until further directions.

3. That the counselors be requested to arrange if possible the time of the county meetings so that it will be more convenient for the president, or the other officers of the Society, to attend the several meetings.

For the Committee,

HERBERT E. SMITH,

Chairman.

If there is no other business for the House of Delegates, a motion to adjourn is in order.

The Secretary: I move that the House of Delegates stand adjourned.

The President: The House of Delegates stands adjourned.

ANNUAL CONVENTION.

The Annual Convention was called to order at 4 p. m. The first thing in the order of business was the

REPORT OF THE SECRETARY.

The One Hundred and Thirteenth Annual Meeting will be of peculiar interest because it will be the last one held according to the Constitution under which we have been since the organization of the Society. The change which we have made and which we finish to-day, makes us more an integral part of the profession of the country and puts us in touch with every State. Already we feel the inspiration of the move as will be seen if we closely notice our accessions, the men who are coming in to us. We are receiving some of the older practitioners of the State who have not before been of our number.

The field seems to be broadening and we may begin to hope that our State Societies may eventually include practically all the physicians of the country, that in these days of larger things the preservation of health and the saving of life may have no restrictions put upon them and that humanitarianism may no longer be limited by dogma or restricted by anything narrow. But our status regarding these things has by no means changed.

The question concerning the admission of any who limit the principles of their practice having been brought to the attention of your Secretary about the time of the Fall meetings, I wrote to Dr. Simmons, Secretary of the American Medical Association, who sent the following reply:

AMERICAN MEDICAL ASSOCIATION.

Office of General Secretary,

103 Dearborn Avenue, Chicago.

October 14, 1904.

Dr. N. E. Wardin,
Bridgeport, Conn.

Dear Doctor:

Replying to yours of the 11th: The question of admission of homeopaths and other sectarians can be summed up in the simple statement that at any time in the past, as well as at present, a homeopath who would renounce his sectarianism and give up all allegiance to sectarian colleges, societies, etc., could be admitted to a branch of the A. M. A. Some thirty or forty years ago a well-known case occurred in New York, when Dr. Peters, who had been connected with a homeopathic college, had written some text books on homeopathy, renounced his sectarianism and joined the Medical Society of the State of New York and the A. M. A. There has never been anything contrary to this in the Constitution and By-Laws of the A. M. A.

As you know, in the early years, in fact, we might say up to 20 or 40 years ago, practically none of the states had a law regulating the practice of medicine, consequently, almost anyone could claim to be a doctor. As a standard of admission, some of the state societies, Connecticut and Massachusetts being among the number I think, accepted no one to membership except on examination. But the great majority of the states required that the applicant must be a graduate of a regular medical college. The word "regular" of course has always been taken to mean what we understand as a "regular" college. In such states those who had obtained their education in a sectarian school were barred from membership even though they renounced their sectarianism, unless they obtained a degree from a regular school. It was this provision in the Constitution and

By-Laws of so many of the state societies that was the basis for the belief that those who had graduated from sectarian schools were barred from membership. Of course, this was true in the states that had this in their Constitution, but not in the others.

So much for the past.

This principle is emphasized in the Constitution and By-Laws for State and County Societies prepared by the Committee on Organization of the A. M. A. You will see it referred to on p. 19, Sec. 5 of Chapter IX of the Constitution and By-Laws for State Societies. It is referred to in the Constitution and By-Laws for County Societies in Art. 3 of the Constitution and again in Sec. 1, Chapter 1 of the By-Laws.

We have discussed the matter in the "Queries and Minor Notes" column of *The Journal* on two or three occasions. See p. 1158 of this week's issue.

I think this answers your question. If not, let me know and I will write you again.

Very truly yours,

GEORGE H. SIMMONS.

This is explicit and leaves no reason for question. It is sincerely to be hoped that this may be the breaking up of all that limits men in their great work of healing and that we may all meet on the same open field *adisti jurate in verbis aulyius magistri*.

A change has taken place in the manner of the publication of the Annual Proceedings of some of the State Societies. Instead of one volume containing all the transactions and the papers for the year, a weekly journal is published. This of course is in following with the *Journal of the American Medical Association*. But the numbers come irregularly and the files are difficult to keep.

The Secretary has in his keeping the original records of this Society from the first meeting at Middletown on the second Tuesday in October, 1792, Jared Potter, Sec-

retary, including the annual convention at Hartford, May 8 and 9, 1839. The second volume commences with the meeting held in New Haven, May 13, 1840 and closes with the Seventeenth Annual Convention held in Bridgeport, May 28 and 29, 1862. These two volumes are legibly written, are fine specimens of chirography and the earlier book is intensely interesting. They ought to be in some fire-proof receptacle. I suggest that they be deposited with the Connecticut Historical Society, the Connecticut Library or in the Hart Building.

The changes between the various counties have not been as numerous as usual. Not many have removed from the State. The total membership is 758, distributed as follows:

Hartford, 1904,	176	
New members,	13	
Transferred,	2	
	<hr/>	
	191	
Left the State,	1	
Died,	3	
	<hr/>	
	4	
A gain of 11		187
New Haven, 1904,	213	
New members,	11	
Reinstated,	1	
Returned to State,	1	
	<hr/>	
	226	
Transferred,	2	
Dropped,	1	
Died,	3	
Removed from		
State,	1	
	<hr/>	
	7	
A gain of 6,		219

New London, 1904,		55	
New members,		1	
		<hr/>	
		56	
Left the State,	2		
Suspended,	2		
	<hr/>		
	4		
A loss of 4			52
Fairfield, 1904,		131	
New members,		15	
Reinstated,		1	
Transferred,		1	
		<hr/>	
		148	
Dropped,	4		
Died,	2		
	<hr/>		
	6		
A gain of 11			142
Windham, 1904,		38	
New members,		1	
Transferred		1	
		<hr/>	
		40	
Transferred,	1		
A gain of 1			39
Litchfield, 1904,		54	
New members,		6	
		<hr/>	
		60	
Dropped,	2		
Died,	2		
	<hr/>		
	4		
A gain of 2			56

Middlesex, 1904,		49	
New members,		3	
		<hr/>	
		52	
Suspended,	1		
Removed,	1		
Died,	5		
	<hr/>		
	7		
Loss of 4			45
Tolland, 1904,		18	
New members	1		
Transferred,		1	
		<hr/>	
		20	
Died,	2		
No change,			18
			<hr/>
			758

The aggregate gain over last year is twenty-two. Last year the membership was seven hundred and thirty-six. Last years gain was twenty-three. The number of new members is large but the number of deaths is also large. Fairfield County has the largest number of new members and is with Hartford County the greatest gainer. A noticeable thing in the accessions is that men of some years practice, who have hitherto kept aloof, are now coming in. This is one of the objects of the American Medical Association to which it is directing attention and for which it is interesting the various State Societies. The names of new members with graduation and residence are:

Frederick Buell Willard, Univ. Vt., 1900, Hartford.

Michael Joseph Dowd, Balt. Med. Coll., 1901, Thompsonville.

Francis Arthur Emmet, Yale, 1902, Hartford.

Julius E. Griswold, Univ. N. Y., 1879, East Hartford.

- Harold Simeon Backus, L. I. Hosp. Coll., 1903, Broad Brook.
- Henry A. Carrington, Harvard, 1848, Bristol.
- Henry Ely Adams, Yale, 1902, Hartford.
- Wyeth Elliott Ray, Yale, 1898, Hartford.
- Ernest F. Fromen, Milwan. Med. Coll., 1897, New Britain.
- John Preston Carver, Albany, 1896, Simsbury.
- John Corbin Pierson, Tufts, 1903, Hartford.
- Charles Fitzgerald, Univ. Vt., 1898, Hartford.
- Henry Farnum Stoll, P. & S., N. Y., 1902, Hartford.
- Timothy Francis Colman, Yale, 1897, New Haven.
- William James Butler, L. I. Med. Coll., 1895, New Haven.
- Charles Neilson Denison, L. I. Med. Coll., 1893, Cheshire.
- Walter Sidders Lay, Yale, 1901, Hamden.
- Gould Sheldon Higgins, Yale, 1901, North Haven.
- David Bercinsky, Yale, 1902, New Haven.
- Louis Adolph Atkins, Yale, 1903, New Haven.
- David Russell Lyman, Univ. Va., 1899, Wallingford.
- Charles Ambrose Beran, Med. Chi., 1887, West Haven.
- Terence Stevens McDermott, Yale, 1898, New Haven.
- David Livingstone Rundlett, Tufts, 1901, New Haven.
- Gordon Spicer Alyn, Univ. Pa., 1903, New London.
- Aloin Walter Klein, Cincinnati Coll., 1889, Greenwich.
- Henry Edwin Waterhouse, P. & S., N. Y., 1902, Bridgeport.
- Donald Robert McLean, Balt. Med. Coll., 1901, Stamford.
- Robert Joseph Lynch, Bellevue, 1897, Bridgeport.
- Charles Joseph Lavery, Univ. and Bellevue, 1901, Bridgeport.
- Phillip Worcester Bill, Ph. B., Yale, 1897, P. & S., N. Y., 1901, Bridgeport.
- Louis Maie Sulemow, Yale, 1895, Bridgeport.
- Stuart Wakeman Sherwood, Univ. Pa., 1902, Westport.
- Lloyd Orrin Thompson, Dartmouth, 1892, Greenwich.
- Charles Smith, L. I. Hosp., 1890, Riverside.
- Albert Joseph Roberts, Harvard, 1902, Bridgeport.
- John Alexander Clarke, Bellevue, 1897, Greenwich.

- William Burke L. I. Hosp. 1896 Greenwich.
Joseph George Mahoney Yale, 1903, Shelton.
Leander Page Jones, N. Y., Hom. Med. Coll., 1874, Greenwich.
Marguerite Jane Bullard, A.B., Cornell, 1902, Cornell,
1904, Putnam.
Jerome Stuart Claffee, Ph. B., Yale, 1894, Univ. Pa., 1897
Sharon.
Ernest Reginald Pike, Univ. Mich., 1898, Lakerville.
Francis Sands Skiff, Univ. N. Y., 1888, Falls Village.
Arthur Volney Stoughton, B.A., Pomona, Calif., Univ.
Ohio, 1898, Terryville.
Paul Plummer Swett, Univ., N. Y., 1904, New Hartford.
George Herman Wright, B.A., Trinity, 1891; M.A., Trin-
ity, 1895, P. & S., N. Y., New Milford.
Arthur Henry Meyers, Medico-Chi., Penna., 1902, East
Hampton.
Dennis Lawrence Glynn, Balt. Med. Coll. 1902, Portland.
Leone Franklin La Paire, Yale, 1901, Middletown.

Fifty in all. This is a large number of new men. Last year it was forty-one. But look the list over and it will be seen and this is a striking fact that many of these who are with us to-day for the first time are not new in the profession. Here are graduates of 1848, 1879, 1874, 1888, 1890 and 1892. We welcome them all gladly as bringing so much mature material to us in our work which is to be newly organized. We think that in this kind of growth is being accomplished that which the American Medical Association, the central influence, has desired, the bringing together into one body the medical men of each state and so of the nation.

But few of the new men have either honorary or academic degrees—one M.A., three B. A.'s, one Ph.D., and one Ph. B., are all. They represent twenty-one medical colleges. Of these Yale has graduated twelve; the Long Island Hospital Medical College, five; the University of Pennsylvania, the University of New York the Baltimore Medical College, three each; Bellevue,

Harvard, Tufts, the University of Vermont, two each and three other different State Universities one each. The losses by death have been appalling. Probably in no year of the Society's history have there been so many—fifteen in all, four of them ex-presidents.

Rud Strickland died in 1900 and his obituary should have appeared in the Proceedings of last year. Dr. Strickland was a physician of the old type and the old school. He graduated from the Albany Medical College in 1839, so that his medical life covered a period of sixty-four years. For some years previous to his death he was the oldest graduate of that institution.

He did not join the Connecticut Medical Society until 1869, where his name is given by mistake as Roland Strickland, and not until 1883 was it rightly given in the list. His only contribution to the literature of the Society was an obituary sketch of Dr. Marcus L. Fisk, of Warehouse Point, in the Proceedings for 1883.

In 1887 he became a Vice President of this Society, ex-officio and the President, Dr. T. M. Hills of Willimantic, being absent upon the second day, Dr. Strickland was called upon to preside. Dr. Strickland's practice extended over two generations in time, while he numbered his patients among the third generation. Three times he was elected to the Senate of this, his native State, and later was U. S. Pension Surgeon.

It is thirty-five years since Dr. Sumner was President of this Society. He was a member of it for sixty years, and during all that time resided in Bolton. He received his medical degree in 1840. He was a member of the Centennial Committee appointed in 1889. He was chosen Fellow twelve times, and elected President of the Tolland County Medical Association four times. In 1870 he was chosen President of the Connecticut Medical Society and his annual address was a sketch of The Early Physicians of Tolland County. This he begins with the organization of the County Medical Association in 1792.

Besides this he wrote an obituary sketch of Dr. Adonijah White of Andover.

George Whitney Burke was one of the veterans of the society. He graduated from Wesleyan University in 1839, three years after received the honorary degree of M.A. from the same institution and in 1843 took the degree of M.D., from the Yale Medical College. Of this medical class, seventeen in number but one survivor is left, Dr. Robert Crane, of Waterbury. Dr. Burke joined this society in 1852. He did not immediately become active but at the meeting in 1863 he was appointed upon a number of committees. That year the session was held at Rockville, Tolland County and among the records we find this, Dr. George W. Burke suggested the expediency of modifying somewhat, the present arrangements of the Society in order to secure a more cordial co-operation of the members at large in its undertakings. The committee consisted of one from each county, Dr. Burke himself being chairman. The report of the committee was in the form of a resolution—

Whereas, The custom of this Society in regard to debentures and taxes was, at the session of 1861, materially changed and

Whereas, Many good members who had faithfully complied with the requirements of the Society until they had reached the age at which, according to our By-Laws, they were exempt from taxation, now feel aggrieved at being again taxed without any corresponding equivalent, therefore

Resolved, I. That the payment of the tax of two dollars be optional with all members over sixty years of age. II. That the practice of furnishing a dinner from the funds of this Society is inconsistent with the true interests of the Profession and ought to be discontinued. III. That the surplus of income of the Society, after paying current expenses, be devoted to the purchase of valuable medical publications to be distributed equally to all members not in arrears. IV. That the clerks of

the several County Societies be requested hereafter, in their annual returns, to specify the names of paying members. V. That the taxes of the Fellows in attendance at the annual State Convention be abated—in place of the old debenture system. VI. That hereafter, the meetings of the Society be held as formerly—alternately in Hartford and New Haven. A further motion which he made, later, was that the public dinner, at the expense of the Society, be dispensed with next year.

All of which shows much interest in the Society, and that the Doctor had the courage of his convictions. Most of the suggestions adopted at the instigation of Dr. Burke are in existence in the Society to-day. And this resulted in the betterment of the Society. In 1864 he contributed a paper—Report of a case of Scirrhus of the Testis, and in 1865 one on Prophylaxis as it relates to Phthisis Pulmonalis. This was the Russell Prize-Essay for which the writer received fifty dollars. The prize was established by Dr. G. W. Russell and the chairman of the Committee of Award was Dr. E. K. Hunt, the donor of the building where we are assembled to-day.

In 1877 Dr. Burke reported to the Committee on Matters of Professional Interest in the State, a case of Arrest of Development in the Human Fetus. This was accompanied by an excellent cut from a photograph illustrative of the case.

When in 1883, the discussion arose about the separation of the Society from its connection with the Medical College, Dr. Burke represented Middlesex County upon the committee and this seems to have been his last public work in the Society. But his interest in it was not abated and he occasionally attended its meetings. He was fond of writing, had for many years kept records of his church, his chirography was beautiful, and it is to be regretted that he has not given us something of his personal reminiscences.

Orlando Brown, one of the four Ex-Presidents to

leave us this year, was a member of the Society for fifty-four years, having joined it in 1830, having been recommended by the Committee on Graduating Students, from New London County. His name first appears in the list of 1861 as practicing in the town of Warren. The town of Washington was not then in existence. From the first he took an active interest in the Society. He attended its meetings, was appointed Fellow and in 1873 and again in 1874 was one of the Vice Presidents. In 1881 an attempt was made by the President and Fellows to fill vacancies which existed in the county delegations. Dr. Brown objected to this, maintaining that the meeting had no power to elect Fellows and it was voted, that the action of the Society in filling vacancies in several county delegations, be and is hereby rescinded, and that the list of Fellows as read by the Secretary, be accepted as the official list for this convention. This was passed unanimously and has ever since stood as the rule. He was one of the committee appointed to confer with the committee of the President and Fellows of Yale College, which severed the connection between this Society and the Medical College. In 1885 he was again a Vice President and in 1888 a member of the committee appointed to revise the charter. Those were trying days, when a demand was made for a larger representation in the body of Fellows. Both the majority and the minority reports of the committee were voted down and no change was made.

In 1887 he was elected Vice President, and in 1890 President of this Society. His address was the Duty of the State in Relation to the Practice and Sale of Medicine. His other literary contributions were a sketch of Dr. Remus M. Fowler of Washington, in 1879; of Dr. Edward Phelps Lyman, of New Preston, in 1882; and of Dr. Myron Downes, of Roxbury, in 1888.

Asa Hopkins Churchill graduated from the Yale Medical College in 1857, in the same class with George Clary, of New Britain. The title of his thesis was "Pae-

tures." In 1881 after having been a Fellow-elect four times he was chosen President of the New Haven County Association. His attention began to be drawn to Life Insurance. Becoming interested in the Mutual Life Company of New York, he threw his work into it and was at one time its President. In 1896 he was virtually compelled to abandon his practice because of an aneurism of the common carotid artery.

Samuel Allen Wilson graduated at the Yale Medical College in 1822, the subject of his thesis being Pneumonia. The Report of the Examining Committee is written by Dr. Pliny A. Jewett and is as forceful as the character of the man would indicate.

John O'Flaherty graduated at the Albany Medical College and immediately took advantage of the situation by enlisting in the service of his adopted country. After serving a year he settled in Hartford where he practiced continuously until his death at the age of sixty-two. He joined this Society in 1866. His only literary contribution was a case of Hydrophobia which he carefully reported in detail to the Committee on Matters of Professional Interest in the State. In his later years his attention was much given to the founding and carrying on of St. Francis Hospital, of which he was a director as well as the presiding officer of the Staff.

Francis Daniels Edgerton would occupy a large field wherever he was placed. He was a graduate of Wesleyan University, Middletown, in 1861. With him, a classmate, was Charles G. B. Vinal, formerly our Secretary of State. The class numbered twenty-six. Three years after Dr. Edgerton received the degree of M.A. in course. He graduated in medicine from the University of Vermont in 1863 and from the College of Physicians and Surgeons, N. Y., in 1864. He very quickly enlisted in the service taking the rank of Second Assistant Surgeon in the Twenty-first Regiment, Connecticut Volunteers, the date of his commission being July 9, 1863 and his residence East Hampton.

In 1871 his active work in this Society began for he was present as a Fellow and was appointed on the Committee on Matters of Professional Interest in the State.

The following year he was the Middlesex County member of a committee appointed to use its influence with the Legislature to secure the erection of an Inebriate Asylum. Dr. G. W. Russell was at that time President. In 1876 he was appointed essayist. In 1877 he was elected Treasurer of the Society. In 1878 he succeeded in securing for Middlesex County, a representation of five Fellows instead of three which it had previously had, because, as Doctors Edgerton and Grannis argued, that County had more tax-paying members than several counties which had five Fellows, that the number was increasing, and that the county was fairly entitled to what it asked, as its membership had nearly doubled since that apportionment was made.

In 1884 he was a member of the committee to obtain Legislative action to consummate the separation of the State Medical Society and the Medical Department of Yale College.

In 1880 he was ex-officio Vice President of this Society. He was Treasurer of the Society from 1876 to 1882 and on his retirement the thanks of the convention were unanimously voted to him for his "faithful and successful services as Treasurer and that we regret the necessity which compels him to resign the office he has so well filled." While he was so active in the work of the Society, he contributed little to its literature. He wrote in 1886, the obituary sketch of Dr. Abram Marvin Shew, Superintendent of the Hospital at Middletown, in 1889 the sketch of Dr. Elisha Bourne Nye and in 1889 that of Cornelius Elijah Hammond, of Portland.

In 1890, the year following our Centennial celebration, he was elected Vice President and in the following year President. His predecessor was Dr. Newton, of Tolland County. His address to the Fellows deals largely with the Medical Practice Act which began to be in force that

year. His address before the Convention was on Standard Dietaries applied to the Nutrition of Acute Diseases.

Since that time he has frequently entered into the discussion of subjects which came up before the various meetings and many of us remember how at the last meeting he feelingly spoke of the old Constitution and By-Laws under which he had been during the forty-one years of his membership.

John Henry Grandin entered the Yale Medical School in 1868 having received the appointment as a gratuitous student from Fairfield County. His residence at that time was Danbury. Having completed a two years' course he was examined and recommended for the degree of M.D. The subject of his thesis was Intermittent Fever. He at once settled in Saybrook and for thirty-five years has gone in and out among the people, the family physician for the entire town. He served as Fellow at the meetings of 1872, 1878, 1882, 1885 and 1888, served on the Committee on Matters of Professional Interest in the State in 1873, 1878, 1880, 1884. In 1881 he was the appointed essayist from Middlesex County and read an essay on the treatment of the Third Stage of Abortion, for which he received the thanks of the Society. At that time an essayist was appointed from each county. In 1885 he served on the Committee on Examination of Students and made the report to the State Medical Society. Among those who successfully passed were Oliver T. Osborne, David Chester Brown and Henry L. Swain. In 1886 he was President of the Middlesex County Medical Association.

In 1901 he became President of this Society. The subject of his Thesis was The Relation of the Practitioner to Growing Children. Beside this and his various contributions to the Committee on Matters of Professional Interest in the State he prepared in 1890 the obituary sketch of Dr. Gersham Clark Hyde Gilbert of Westbrook. From the same town of Westbrook came Dr. Thomas Blanch Bloomfield. He graduated from the College of

Physicians and Surgeons, N. Y., in 1876, and settled in Middletown. In 1877 he moved to Old Saybrook and in 1880 finally settled in the adjoining town where he spent the remainder of his days. Of the deaths during the year three were medical graduates of 1876.

William David Spencer graduated from the College of Physicians and Surgeons in 1876 and joined this Society from Saybrook in 1898.

William Charlbourn Haven died of pneumonia, December 26, 1904. His father was a minister. In his mother's line he came from an ancestry of physicians. He was early a scholar at Munson's Academy. He graduated in medicine at the University of New York and served as assistant physician at the Insane Asylum upon Ward's Island. In 1884 he settled in Bristol, and moved to Coventry in the following year. In 1889 he was elected as Representative to the General Assembly and in 1899 to the Senate. He was repeatedly elected a Fellow from his County and at the time of his death was President of the Tolland County Association.

James Albert Moore died March 9, 1905, of cerebro-spinal meningitis after an illness of three days. He graduated from Yale in 1892 and from the medical department in 1894.

I cannot retire from the position of Secretary without expressing my thanks to the members of the Society, for their kind indulgence to me in the arduous, trying and responsible position. Indeed the freedom, the familiarity and the friendship with which I have gone in and out among you has been one of the most delightful things in my life.

The office came to me utterly unsought in the year 1888. I have never made any effort to retain it excepting the full performance of duty. I have administered it without fear and I hope without favor, recognizing only the best good of the Society. My heart has been in the work and I have enjoyed it.

THE HONOR WE DELIGHT IN PHYSICIAN PAUL.

I desire to express my profound gratitude to each and everyone.

S. E. WORDIN, Secretary.

Dr. Godfrey then read a report on the Progress of Surgery which was followed by that of Dr. B. A. Cheney.

Dr. Bartlett then read the Dissertation, The Use of Laboratory Aids in Diagnosis which brought out an exceedingly interesting discussion. The convention therefore adjourned until ten o'clock Thursday morning.

THURSDAY MORNING SESSION OF THE CONVENTION BEGAN
O'CLOCK.

The first paper read was by Dr. H. M. Lee of New London, on Gastric Ulcer, immediately followed by that of Dr. McIntosh of New Haven, on Carcinoma of the Stomach. The subject elicited discussion.

Dr. Boucher then read a paper describing a case of Adenoma of the Kidney with operation of nephrectomy, resulting in a recovery.

Dr. Oliver C. Smith in speaking of the Diagnosis of Surgical Diseases of the Kidney, exhibited some of the modern appliances used for that purpose.

The hour of twelve having arrived the President made his address a *Résumé* of the Development and Present Status of Gastric Surgery and the convention immediately adjourned to 1:45 p. m.

THE AFTERNOON SESSION BEGAN AT 1:45.

Dr. Taft's paper on Pregnancy in Malformations of the Uterus with report of cases was called for. Dr. Taft had deposited his paper with the secretary having been called away on a court case. It was read by title and referred to the committee on publication.

Dr. McDunnell then read his paper on the Prevention of Venereal Diseases.

The President: You have heard the paper of Dr. McDunnell on the Prevention of Venereal Diseases. That

serves as a report of the committee. Will you remark upon Dr. McDunnell's report?

Dr. Moulton: If it is in place, Mr. President, I would like a motion that this Committee on Venereal diseases be continued for another year and that next year they try to formulate some plan of action for the medical society to take.

Dr. Strasser: I second the motion of the first speaker, and allow me to add that this suggestion be given to the committee,—let us make an appeal that all respectable medical men refuse to visit these brothels of prostitution, and much less sanction them by our certificates.

Dr. Barton: I would like to move to amend that motion if I may. It seems to me too bad to have the committee wait another year to report back to the Association. I move to amend that the committee be continued, with instructions to take such steps during the next year as they may deem fit for the dissemination of this knowledge.

The President: The chair will suggest that the by-laws require that the special committee shall be appointed by the House of Delegates. Now that committee has not reported, but we can move to request the House of Delegates to continue that committee if we are so disposed, and I think that is the form in which the motion should probably be offered,—to request the House of Delegates to continue that committee, and they making the report according to the lines which they have been instructed in, and recommended by this Association. Both members of the committee are present. I am sorry myself that they did not have a report to make, but that is neither here nor there. I think that should be the order in which the motion should be put, if Dr. Moulton will allow me.

Dr. Moulton: I certainly will be very glad to make my motion in that form, and move that the House of

Delegates be asked to continue this committee, including Dr. Barton's amendment. Motion seconded.

The President: You have heard the motion. Those in favor please say aye; contrary no. It is a vote.

Dr. Howe has very politely given way his paper, requesting that Dr. Foster of New Haven, be allowed to read his paper on The Purpose of the Gaylord Farm Sanatorium and Its Relation to the State. Dr. Foster read his paper.

Dr. Croosfield read his paper on The Fascial Tonsil followed by Dr. E. Terry Smith on Adenoid Hypertrophy occurring in Children.

After a discussion on this topic Dr. Crothers read a paper on Alcohol as a Remedy in Disease.

Dr. Chipman presented the subject of an Efficient and Rational Method of Reducing recent Dislocations of the Shoulder Joint illustrating the method upon his young son whom he had brought to the meeting for that purpose. Discussion followed.

Dr. Band followed with a paper on The Use of Cocaine in Surgery.

Dr. Allen H. Williams of Hartford discussed the subject of Pronated Feet showing a variety of splints and appliances.

Dr. Crane made only extracts from his paper on Skin Grafting and by consent of the meeting a change in the programme was made that Dr. Dennis might read his paper and return to New York.

Dr. Dennis read his paper, The Treatment of Malignant Disease, including a Report of over one hundred cases permanently cured by surgical operation, his time limit being extended by vote of the Society.

Dr. Sullivan then read his paper, Acute Intestinal Obstruction; Resection of four feet; Recovery, and Dr. Verdi one on Radical operations for mammary Carcinoma. The others regularly on the program were called for and read by title. The need of Popular Educa-

tion in the Tuberculosis Problem by Dr. F. T. Simpson; Prophylaxis in Tuberculosis by Dr. C. D. Alton; Tubercular Diseases of the Spine by Dr. Arnold of New Haven; The Treatment in Tubercular Joint Disease by Dr. J. E. Root; Infant Feeding with Cow's Milk by Dr. Steele of New Haven, on the Medical Treatment of Gall-Stones by Dr. Goodenough.

The President: Gentlemen, I have a very decided feeling of pride, and also of chagrin, at the way in which the meeting has terminated. When I began my duties as president, I was warned by those who had had experience, that I should have difficulty in getting papers, that I couldn't get papers enough, that the members of the Connecticut Medical Society would not contribute and that I must look for outside aid. I did not do so. As a consequence I appealed to the members of the Society, with the result that we are absolutely over-burdened with work. The reason we have not had these last papers read was because there was no time to do it, and the men felt there wasn't any chance, and so they went away. I think it is up to the House of Delegates to provide more time for our future meetings. We cannot get along here in a day's convention with what is left over from the day before. We have got to have separate meetings of the House of Delegates in advance, and give up at least a day and a half to our own work. I am satisfied that we will have to do that. It is not necessary to make any motion, but that has got to done. The House of Delegates will have to make that provision.

It only remains for me to express my great satisfaction and my unbounded gratitude to the gentlemen of the Connecticut Medical Society who have paid me the compliment of getting these papers together. The meeting has been, until the time limit seemed to have gone by, a brilliant one. We have had papers here of extreme interest, and as there are those that were left,

which have not been read, it simply means that there wasn't time. They were just as good as the others, and I feel satisfied that the Connecticut Medical Society has started on a new line and we will get some good papers hereafter; and we will not have to go outside.

It is a matter also of very great gratification to me to think that the work is to be carried on by one who has for so many years been familiar with the work, and will be able to push it along still further. I have the great pleasure of introducing Dr. Wordin, whom you all know already, as the next President of the Connecticut Medical Society.

Dr. Wordin: Gentlemen, I will not say anything of consequence at this time. It is with a good deal of misgiving that I accept the office of President, under the by-laws which have been acted upon today. I suppose things will shape themselves as the months go by. However, I shall only ask that I may have as much support as Dr. Carmalt, my predecessor, has had from you in the work. I thank you very much.

Dr. Sullivan: Dr. Wordin, as this will be the last time you will act as Secretary of the State Organization, I move you, sir, and I am sure that the task will be a pleasant one to the retiring Secretary, that a vote of thanks be given to the retiring chairman. I move you, sir, that the thanks of the Connecticut State Medical Society be extended to our retiring President, and be placed on the records of this meeting. Motion seconded.

Dr. Wordin: Gentlemen, you have heard the motion, seconded by three or four of you. All who are in favor of it signify it by saying aye; contrary minds. It is a vote.

Dr. Holmes: Mr. President, I would like to speak a word with relation to our retiring President, Dr. Carmalt. It seems to me from the abundance of papers

which we have had today presented to us, we should have another meeting, and I have this proposition to make, and shall make a motion that it be referred properly. I think it would be a very nice plan for the Connecticut Medical Society to have a biennial meeting and have it in the fall, and let the meeting be pushed off into the counties, perhaps joining with each county society at the time of its own meeting, and I think this question as arisen can come up, and it has been spoken of by so many that really I would make the motion that that question of a fall meeting be referred to the House of Delegates.

The President: Is the motion seconded?

A Member: I second the motion.

The President: It is moved and seconded that the question of having a fall meeting, a biennial meeting, be referred to the House of Delegates for their action. Will you speak further upon it?

I think there is a chance for a good deal of work to be gotten in. The suggestion that the State Society be a guest of one of the county societies in rotation round about the state is a very good one; I think it will do a great deal of good.

A formal meeting must be held by the House of Delegates, as the by-laws call for, and you cannot call a meeting now. That has got to be done by the House of Delegates, but I think the chances are that it can be arranged in a satisfactory way, and we will not be crowded so with work as at the annual meeting. Those in favor please say aye; contrary no. The motion is made and it will be referred to the House of Delegates by the Secretary.

Unless there is other business before the house, a motion to adjourn is in order.

Dr. O. C. Smith: I move we adjourn. Motion seconded.

The President: I declare the convention adjourned.

PRESIDENT'S ADDRESS.

PRESIDENT'S ADDRESS.

RÉSUMÉ OF THE DEVELOPMENT AND PRESENT STATUS OF GASTRIC SURGERY.

As I recollect it, the first case I saw in entering practice as an interne in St. Luke's Hospital, New York, in 1861, was a stab wound of the stomach, in a man received in a brawl a day or two before, and it was most strongly impressed upon me by the attending surgeon, the late Dr. Gordon Buck of honorable memory, that it should not be touched; it must be let alone, taking the chances of adhesions forming around the wound in the stomach shutting it off from the general peritoneal cavity. The man recovered, hence the practice was correct.

When I entered on my duties as instructor in surgery over twenty years ago, in 1881, I adopted as the text-book to recommend the students to follow, Thomas Bryant's *Practice of Surgery*, a fully up-to-date book of the time. In that work gastrotomy and gastrostomy are the only operations mentioned to be performed upon the stomach. In other books of the same date, recommended for collateral reading, were *Erichsen* who used the term gastrotomy as synonymous with laparotomy, and *gastrostomy* as the only operation peculiar to the stomach; *Holmes' System of Surgery*, 1882, described gastrotomy for the removal of foreign bodies from the stomach, and also described the performance of a gastric fistula; *Ashurst* described gastrostomy, but gives no reason for performing it, and he mentioned gastro-enterostomy, simply defining, but not suggesting any use for it. *Gross' System of Surgery* in 1882, besides the two mentioned above also mentioned gastrectomy, as an operation having been performed, but states "that in view of the facts that incipient carcinoma is difficult of detection,

with extensive adhesions, glandular contamination, and secondary visceral growths are frequent complications; that three-quarters of all patients have heretofore perished from the effects of the operation, and finally, that the procedure has materially shortened, instead of prolonging life: I am of the opinion that gastrectomy for carcinoma will soon fall into desuetude, and that its details need therefore not be described." In Koenig's *Lehrbuch der Chirurgie* standing in the forefront of German Surgery of that date, 1881, injuries to the stomach and perforations thereof are the only subjects referred to. Hueter's *Grundriss der Chirurgie* published the following year, 1882, is much further advanced in that, under the general head of gastrectomy he described operations for removal of foreign bodies; for establishing a gastric fistula; for removal of cancerous growths of the pylorus and refers rather dubiously to the possibility of excising the round ulcer of the stomach. He was indeed bold!

In recent works on operative surgery thirteen different and distinct operations are described, as to be performed, the objects and the methods of operation detailed with great particularity; and besides these distinct and separate operations, we find descriptions from time to time of combinations of these operations performed on the same individual for a variety of conditions found necessary on getting into the abdominal cavity. These operations are as follows:

OPERATIONS ON THE STOMACH.

Gastrotomy.—Incision into stomach for removal of foreign bodies, first performed in 1662 by Mathes of Brandenburg, fell into disuse, however, but revived by Frizac of Toulouse in the last decade of the 18th century, 179—?

Gastrostomy.—Suture of stomach in wounds and in acute perforations from gastric ulcer, employed for wounds from very early times; first practised for acute perforating ulcer in 1892 by Heusner, reported by

Krieger, who is usually quoted as the operator. The term is frequently but improperly applied to gastropexy and to gastroplication, terms used for suturing for other purposes.

Gastrostomy:—Or gastric fistula, is an operation for establishing a more or less permanent opening between the stomach and the external skin of the abdomen, an artificial mouth, for feeding persons in whom an impermeable benign or cancerous stricture of the esophagus or cardiac extremity of the stomach exists, first performed by Sedillot in the fifth decade of the last century, an accepted operation at the present time for the purposes mentioned.

Gastropexy:—Is a shortening by suture of the abnormally elongated gastro-hepatic ligament in the condition known as gastropnoia, or displacement of the stomach as Plenard's disease, first performed by Duret in 1896, sometimes called gastrorrhaphy.

Gastrolisis:—Is the freeing of the stomach from adhesions to neighboring organs, first performed by Laueinstein.

Gastroplication:—Is taking a fold or reef in a chronically dilated stomach; first performed by Blicher in 1901, called also Gastrorrhaphy by Weir, who did the operation independently in 1892.

Gastroplasty and Prioreplasty:—Are similar operations performed on the body of the stomach or the pyloric extremity, for cicatricial contraction in either situation; the latter was performed by Heineke and Michulicz in 1896. Some years afterwards the similar operation was made on the stomach for hour-glass contraction of that organ.

Pyloroplasty:—Divulsion of the strictured pylorus, known as Lorenz's operation, first performed in 1883.

Gastrostomy and Priorectomy:—Are operations for the removal of the whole, or of the pyloric extremity, only, of the stomach; performed for cancer. Pylorotomy was first performed by Pean, 1879, under the

name gastrectomy. Gastrectomy proper was first successfully performed by Schallier in 1897.

Gastro-Enterostomy:—The establishment of an anastomosis or fistula between the stomach and intestine, any part; first performed for cancer of pylorus by Wolff in 1881, since performed for a variety of conditions by a great number of operators.

Gastro-Gastrectomy:—Establishment of a fistulous communication between the two pouches of an hour-glass contraction of the stomach, also first performed by Wolff.

One appreciates, in this contrast, the great advances in surgery in the last quarter of a century, brought about almost entirely by the skillful employment of asepsis and antiseptics. Of course, anesthesia renders the patient willing to submit to the operations proposed by the surgeon, but the surgeon did not dare propose them, until asepsis rendered it possible to open and manipulate the contents of the abdomen with relative impunity.

It is my purpose to-day, briefly, to call your attention more particularly, to some of the developments of modern gastric surgery; but before doing so, I must insist that the surgeon has to depend upon the internist bringing to him cases proper for operative interference, and in invoking his assistance in those cases in which the diagnosis is uncertain, so that an explorative operation may be made, to determine whether a further procedure is necessary or feasible. The modern internist has as distinct a duty to perform in making an accurate diagnosis of the condition of his patient, as the surgeon has in the technique of the performance of the operation. He must determine by examination of the stomach by all the modern methods, what cases can or cannot be cured by internal medication and dietetics; the physiology of digestion is to be studied and its proper performance or capabilities determined by test meals, examination of the contents at various periods of digestion, the character and constituents of the

vomit, if it occurs, the chemical examination of the feces and of the urine; the position of the stomach is it displaced? is it dilated? does it empty its contents properly? is there any interference with the outflow of the gastric contents? are the stomach walls themselves in a healthy and normal condition? In other words, the particular form of dyspepsia or indigestion with which the patient is afflicted, must be settled or at least a reasonable opinion arrived at before attempting the more violent procedure of an operation; for, although I have spoken of the necessity and propriety of opening the abdomen for purposes of exploration, I do not want to be misunderstood as regarding this as a trifling procedure. No laparotomy is to be undertaken lightly, but much may be learned by an early exploration, and an operation carried out with success, that would be fatal if deferred until the symptoms were so positive that no doubt could be entertained of the nature of the disease. Hemmeter doubts the propriety of a radical operation for carcinoma that is deferred until a positive diagnosis is arrived at by examination of the stomach contents. Professor Kehr refers frequently, in his various papers on gallbladder operations, to the advantages of "autopsies *in vivo*," as being much more practically instructive than post-mortem autopsies, and the same thing applies to gastric surgery. I beg earnestly to call your attention to the excellent paper you have heard this morning by Dr. McIntosh on early diagnosis of cancer of the stomach as of the highest practical importance for the gastric surgeon as well as that of Dr. C. J. Bartlett on the uses of laboratory aids in diagnosis.

The operations for gastrectomy, during the first decade of its performance, give a great deal higher percentage of mortality than those of the last decade. Of the first one hundred gastrectomies performed by various surgeons, I think I am within the limits in stating that the mortality was something like ninety per cent.

within the first four months. Now, the mortality in the hands of competent surgeons, is less than half that, and this has been accomplished, not so much by greater skill in technique, although that has had much influence, but by the fact that operations are undertaken before conditions have become so advanced and complicated that success is impossible. The early stage of cancer of the pylorus is a condition susceptible to operation with a reasonable prospect of success. It is to the internist, to tell from his examination and the symptoms, that the disease has begun, or that some condition exists which requires an exploration, that the proper procedure may be carried out successfully. And by success I want to be understood as meaning to the benefit of the patient's future life and comfort, not simply that the patient is removed from the operating table alive and lives an uncertain, more or less miserable, existence for a few weeks or months. The too frequent expression that the operation was successful, but the patient died, has no application in modern surgery. Neither do I think that the blame is altogether to the surgeon; it is the medical man, the internist, who defers bringing the patient to the surgeon until there is nothing left to operate upon. These operations should not be undertaken as a *last resort*. They are a part of the treatment, they are an incident to, not the end of the treatment, by any means; this applies to gastric surgery quite as much as to any other one organ.

In the operations above given as incident to the stomach, I want to speak briefly of their more modern application, and I will take them up more or less seriatim.

Gastrostomy, or suture of the stomach employed from early times for wounds, was first performed, as near as I can learn, for acute perforating ulcer in 1892, and we find, in looking over the literature of the last two years as compared with twelve years ago, it is much more successful now than then, simply because we operate at the

first suggestion of the perforation, and do not wait until bystanders are convinced that the operation is necessary. And indeed, I almost feel like saying that this operation should never be performed, because the conditions leading to the perforation should be recognized, and the operation done before the perforation occurs. It is one of the most recent advances that we have, and the members of the Hartford Medical Society do not need to be reminded that the operation of gastro-enterostomy should render unnecessary the operation of gastrotomy for perforating ulcer. Two operations are performed for perforating ulcer of the stomach, the one I have just mentioned, and also a partial gastrectomy. It depends upon the conditions we find upon opening the abdomen as to which we will do. If the perforation be small, and but a small amount of gastric contents have escaped, we may simply invert the stomach walls, and after uniting the edges by a few through and through sutures, turn it in with a row or two of Lembert's sutures, feeling tolerably secure that we have done all that is necessary. If, however, as sometimes occurs, the opening is large, the edges of the ulcer ragged and infected, or, as also occasionally occurs, there are two or three ulcers in the immediate vicinity, we excise a portion of the stomach wall, throwing all into one clean section and unite them in the same way. But this condition usually requires another operation as well. In most cases a gastro-enterostomy should be performed simultaneously. I will speak of the methods of performing this, later.

The operation of gastropexy for gastroptosis, or Glennard's disease, has been improved upon since it was first proposed by Duret in 1896, by Beyer of Philadelphia, in that he makes a succession of duplicatures of the gastro-hepatic ligament, shortening it up completely. One row

of sutures is super-imposed upon another, and the whole hemmed up, so to speak, into a single short fold.

The operation of gastrotomy is a good deal more useful than one would suppose from a simple statement of its object. The freeing of the stomach from adhesions to neighboring parts not infrequently is of great benefit. We occasionally find the duodenum so firmly united to the stomach by external adhesions, that a veritable stenosis exists, the contents of the stomach cannot pass into it without great difficulty, gastric dilatation takes place, the symptoms are those of pyloric stenosis simulating stricture, giving rise to a suspicion of carcinoma, and in more than one instance, the simple separation of the external peritoneal adhesions, the straightening out of all kinks, and the insertion between the former united surfaces of a few layers of Curgyle's membrane, or of silver foil, has kept them from uniting again, and has been substituted for a contemplated pyloroplasty the patient been freed of a discomfort giving rise to the question of malignant disease that has lasted for years. An earlier explorative incision would have relieved years of apprehension as well as physical distress.

Gastroplication, frequently called gastrotrophy, was first performed by Birkle in 1891. Singularly enough, he described his operation just in time to prevent our honorary fellow member, Dr. Robert F. Weir, of New York, from getting the credit of it. Weir performed the operation the following month entirely unaware that he had been anticipated.

This operation consists in simply taking a reef or tack in a dilated stomach. It is true that the dilatation is usually the secondary result of an obstruction to the outflow which must also be corrected. It may however, be due to a simple atony of the stomach wall itself, to which class of cases it is especially applicable, though it is occasionally necessary to perform it in combination with some other, directed especially to

relieve the stenosis, a pyloroplasty or Loretta's operation of pylorodilata.

A question sometimes arises between this operation and a posterior gastro-enterostomy, which of course empties the stomach of its retained contents, but where the stenosis is not great, this is certainly to be preferred. A gastro-enterostomy, within certain limits, cuts off a portion of the digestive tract from performing its function, and is so far objectionable. This operation is free from that objection and is much less severe, attended with much less danger than the other. It is rapidly carried out, and there is less shock. It consists in depressing, by means of a sound, or probe or some instrument of this kind, the anterior wall of the stomach, and then with a succession of Lambert's sutures, whether interrupted or continuous is immaterial, cover in the probe, approximating the greater with the lesser curvature. A union between the opposing serous surfaces takes place, a free fold of mucous membrane being duplicated back into the stomach itself. It creates no disturbance there, and the excess of pouch of the stomach is obliterated.

The condition known as hour-glass contraction of the stomach is unusual. It may be congenital, or it may be acquired as the result of inflammatory process in the stomach wall or the cicatrization of an ulcer. I am not aware of symptoms sufficiently definite to make a positive diagnosis before the abdomen is opened; and so far as that goes, it has sometimes escaped observation even then. The contraction may be in a portion of the stomach that does not come to view on first opening the abdomen and thus be overlooked. But when it exists, the stomach contents are not so freely evacuated as they should be into the intestine. They remain, decompose and ferment giving rise to dyspeptic symptoms, and the relief is only obtained by a surgical mechanical procedure. This may be of two kinds, a partial gastrectomy may be performed the contraction excised and the two cut surfaces united, this section

taken out being more or less of the middle of the stomach.

Such a serious operation is, however, not frequently done for this condition: one of two others, either a gastropasty, or a gastro-gastrostomy. A gastropasty consists in making a longitudinal incision through the whole depth of the constriction on the anterior surface of the stomach, dividing everything through, and then uniting the two extreme ends of this incision, uniting the cut at right angles to the original incision. By this means the constriction is obliterated. It is the same operation applied here that is known under the term of pyloroplasty for benign constrictions at the pyloric end. This last operation of pyloroplasty, as I have stated, was performed in 1886 by Mickulicz and Heintze. I do not know who first transferred the operation to the stomach itself.

Gastro-gastrostomy was, I think, first performed by Wölfler, who also, as you know, invented, if we may use the term, the operation of gastro-enterostomy. It is in all respects a similar operation; the two pouches of the stomach are united by a fistula at the lowest part and the obstruction to the flow of the gastric contents is removed. Wölfler also proposed, for this condition, that the constricting band should be cut entirely out on its lower portion, and the two walls of the stomach united directly, making a partial gastrectomy.

Pylorodiosis, designated generally as Loretta's operation, consists in the division or dilatation of the strictured pylorus by some blunt mechanical means. Loretta's operation consisted, as stated, in making a gastrotomy, an opening into the stomach, and then pushing the finger or other blunt instrument into the pylorus, dilating and breaking down the adhesions and constricting bands. Hahn improved upon this in certain cases by avoiding the gastrotomy, simply invaginating with the fingers the anterior portion of the stomach wall

and the same portion of the duodenal wall, pushing them through, from opposite sides, into the strictured portion until they met, separating it so that they would pass freely, and then removing the invagination. The operation has its uses, is frequently reported as successful, the patient being relieved from his dyspeptic symptoms for a considerable time. It cannot of itself be regarded as necessarily permanent; many cases of return of the constriction have been reported, and another and more radical operation undertaken subsequently. It depends upon the amount of constriction, the thickness of the band surrounding the pylorus as to whether one may expect a good result or not. A small or thin constriction may be relieved in this way. A thick firm one requires either a pyloroplasty, as above described, a pylorotomy, or a gastro-enterostomy, all of which are applicable.

The term gastrectomy, meaning the removal or the extirpation of the stomach, has been used improperly almost from the beginning. It means properly the removal of the entire stomach, the union of the esophagus with the duodenum. Now this has been performed, so far as I know, successfully but twice, and by successful I mean the patient living with relative comfort for a year or over. It may have been done unsuccessfully without my knowledge, but the only two cases that I have been able to find reported are those by Schallter in 1897 and by Richardson in, I think, 1902. Most of the other operations of this character are really pylorotomies or, in some cases, partial gastrectomies, some other portion of the stomach wall having been removed, as I have already indicated, in cases of acute perforation; more frequently, however, for localized cancer of some other portion of the stomach than the pylorus.

Pyloroplasty then called gastrectomy, was first performed by Pean in 1879, in 1880 Rydygier of Lemberg, in 1881 by Billroth in Vienna. Rydygier's patient lived

some months, Billroth's first patient died, but he and his assistants, Wölfler, von Hacker and Mickulicz, continued their efforts in this line, and rapidly brought the operation and its substitutes sufficiently to the notice of the profession to inspire surgeons elsewhere to renewed efforts to relieve conditions heretofore thought hopeless. And I think that it is perhaps to Wölfler more than to any other one person, who, by his invention of gastro-enterostomy, has advanced the cause of gastric surgery to its present fairly successful issue.

Gastro-enterostomy is now performed as a substitute for pylorotomy in cases to which that procedure is inapplicable, as well for various other morbid conditions of the stomach, more particularly, of recent years, that of gastric ulcer and of its later results; in short, any condition in which there is an obstruction to the outflow of the stomach contents through the pylorus which cannot be relieved by a more direct method. Also of any condition of inflammation or ulceration of the stomach or duodenum in which the passage of the intestinal contents is a source of irritation, may be relieved by short-cutting, so to speak, the track of the intestinal current.

The members of the Hartford Medical Society do not need any exposition from me of the advantages to be gained by this procedure. They have within the last two days had this matter discussed before them in much more detail than I can expect to go into here. Dr. Munro of Boston has been the advocate and champion of the treatment of ulcer in the stomach by this method for the last few years, and has at last been able to convince his brethren both internists and surgeons, that the operation should be performed much more frequently than it has been; that the conditions of chronic dyspepsia, whether due to actual ulceration or otherwise, may be relieved, in many cases, by this procedure. The field is a wide one, and is being exploited, or perhaps better say explored by surgeons throughout the world. I may mention a few names more prominently identified

than others, but one hardly takes up a journal in these days that does not contain evidences of the interest and value of this operation. The Mayos of Rochester, Minnesota, Murphy of Chicago, Rodman of Philadelphia, Halsted of Baltimore, are but a few of the names in this country, besides Dr. Munro who have had brilliant results. Many of our own members are doing it, and it is to urge its further performance that I write this paper. In England Robson and Moynihan have inspired us with their success, and the names of our German confrères are as the leaves of the forest.

Gastroenterostomy as a substitute for pylororectomy in cancerous stricture is, of course, but a palliative procedure. The cancerous growth is not removed, it still remains a menace to the life; but it has been found that by deflecting the course of the intestinal current, putting the pylorus and its diseased tissue at rest, removing the source of irritation from it, putting it, so to speak, out of commission, that the progress of the disease is materially arrested. The patient is relieved from his most distressing symptoms, and it has been found in several instances that a disease which was progressing to a fatal termination, probably in a few weeks or months, has been so quieted that the tumor which before was growing rapidly, has been said to disappear, and furthermore, it has been found possible to do a radical operation of the pylorus subsequently to the cure of the patient.

You will have noticed, probably, that I have made but little mention of the technique of these various operations. It would be impossible, in the time at our disposal, to go into this with any considerable detail. We cannot, however, in considering the causes for the success which these and similar operations on the intestinal track have obtained, omit mention of the Murphy button, which is a household word in the mouths of all dealing with gastric and intestinal surgery. It is possible that without this we still would have accomplished a great

deal in this line, but the Murphy button is known and employed the world over. It goes almost without saying, that when we speak of making an intestinal anastomosis we mean that the Murphy button is employed; and yet there are many other devices used by individuals with more or less success. The Murphy button itself was preceded by Semm's absorbable decalcified bone-plates; but I do not care to run over the list of these devices in any detail. I want simply to mention one which I think may take the place of, and perhaps supplant, the Murphy button, but I doubt it, although I personally prefer to use it and I know other surgeons who do likewise. I refer to McGraw's elastic ligature as a substitute for the Murphy button. I find it easier of application, more quickly done, it is less of an obstacle to the intestinal current, and, in the operation of gastro-enterostomy especially, it has very distinct advantages. An objection to the Murphy button in this situation is that it has in several instances fallen back into the stomach instead of being carried forward in the intestinal current. In that situation it has given rise to distressing sensations, has required a gastrotomy subsequently for its extraction. It has been blamed as the cause of death in more than one instance; it has remained in the stomach causing apparently no discomfort for several months, certainly, however, not a desirable condition; while in other situations in the intestinal tract it may do well, but in this particular situation the incident that I have referred to is one which should preclude its use when we have so good a substitute as the elastic ligature. In this you can make the communication as large as you please. The cause of the contraction of the anastomosis in the subsequent course of years is one that has been made an objection to the Murphy button. This is much less likely to occur with the use of the McGraw ligature.

The situation at which the anastomosis should be made has been found to be an extremely important point. At first it was supposed that almost anywhere would

do, but it was soon found that the subsequent success depended upon several factors. As at first practised, the most available portion of the intestinal track with regard to proximity, even the transverse colon was taken to make the anastomosis. This, however, did not do. The small intestine must be utilized in the process of digestion and naturally it was sought to make the union as near the upper end as possible and gastro-duodenostomy was practised by Dr. Finney of Baltimore. This was not altogether satisfactory either, the contents of the duodenum regurgitated into the stomach causing renewed vomiting. The intestinal current did not run towards the length of the intestine but a vicious circle between the duodenum and the stomach was created and the condition was unrelieved.

In the next place, the drainage of the stomach must be at its most dependent portion. In most cases requiring the operation the stomach is dilated, a pouch exists often extending down to, or even beyond, the level of the umbilicus, and with this dilatation there is almost invariably an atony of the muscular coat, so that the motility of the organ is embarrassed; hence when the new opening is made in the anterior wall of the stomach, which naturally first presents itself on opening the abdomen, the contractions of the stomach are not sufficiently strong to propel the contents up to the level of the new opening, and the patient is not relieved from the fermentation which is so distressing a symptom. Besides this death followed in several instances from gangrene caused by pressure upon the transverse colon where the anastomosis lay across it.

To obviate these untoward results Wüllerer or Mickulitz made the opening in the posterior wall at the most dependent portion of the gastric pouch. This was a very great improvement; probably at present the most satisfactory results are obtained by making the anastomosis in the course of the jejunum just below the duodeno-jejunal flexure where the duodenum

passes up behind the stomach and the jejunum turns downwards to take its course more or less alongside of the vertebral column, a gastro-jejunostomy. The Mayo and Maynilhan and Boleson give this the preference when the operation of election may be carried out. Kocher, however, to make assurance double sure, drags the jejunum up a little and after making the gastro-jejunostomy at a point further along on the jejunum, makes another between the two arms of the jejunum lying in apposition, establishing a jejuno-jejunostomy; this he claims entirely does away with the vicious circle. One must be guided in the determination of the necessity of this double procedure by the conditions found at the time of operating, the extent and firmness of the adhesions, the kinks or other contractions in the duodenum, etc. In some conditions this may be quite an advantage, in others it may not be necessary and should not be undertaken as a routine procedure.

While the posterior gastro-jejunostomy when carried out properly is, on the whole, the most satisfactory, it is at the same time somewhat more complicated in technique. The transverse colon and its mesocolon are between the two viscera which are to be united; the colon must be lifted up and turned over upon the stomach, putting the mesocolon on the stretch; an opening is made in it through which the posterior wall of the stomach must be pushed through from above, and the union with the jejunum made there. This is fairly easily carried out but two important precautions must be observed, the mesocolic vessels must be avoided, otherwise very uncomfortable bleeding may take place between the mesocolic folds, but if a vessel of any considerable size be divided the nutrition of the colon suffers and gangrene may take place just as when constricted. Deaths have occurred from neglect of this precaution. The same thing occurs if there is too large an opening in the mesocolon interfering with the nourishment of the colon. On the other hand again, strangulation of the je-

jejunum has occurred by the opening in the meso-colon being too small, the adhesions constricting it sooner or later, the patient dying of intestinal obstruction.

Investigations as to the re-establishment of the gastric functions, after this operation, have been repeatedly made by quite independent observers, with most satisfactory results. Unless there be extensive carcinomatous involvement the reports are favorable. One may say that this constitutes a successful result—if the patient dies except as the immediate consequence of the operation from shock or hemorrhage or faulty technique as indicated above, it is because the gastric functions are not re-established. It is, however, of interest to observe as has been done, that the improvement in both secretory and muscular functions begins immediately and progresses straight along to the ultimate restoration of the functions to normal.

Gentlemen: I confess to a certain feeling of chagrin last Saturday as this address was ready for the copyist; on receiving the polite invitation of the Surgical section of the Hartford Medical Society, to attend its meeting on Monday evening, to find that the subject of this paper was to be anticipated by a discussion by so advanced an advocate of gastric surgery as Dr. Munro. I feel that my words today are but a feeble echo to those spoken in this hall two evenings ago. I hope that they will serve to emphasize what he has said with much more freshness and vigor and more directly at first hand. If they but serve to show to the general practitioner, under whose care these cases first come, that much more may be done to benefit the chronic dyspeptic than is generally supposed, a useful end will have been obtained.

DISSERTATION.

THE USE OF LABORATORY AIDS
IN DIAGNOSIS.

THE USE OF LABORATORY AIDS IN DIAGNOSIS.

C. J. BARTLETT, M.D.,

NEW HAVEN.

I wish to ask you to consider, in the time at my disposal, certain features of the use of laboratory aids in the diagnosis of medical and surgical cases. Out of the great mass of laboratory research work of the past twenty or thirty years there have been evolved definite methods of microscopical, chemical and bacteriological examinations. By means of these, more accurate diagnoses can often be made than had previously been possible, or can at present be reached in any other way. These methods require special apparatus and special training for their satisfactory application. I have chosen to discuss this subject, instead of one dealing with some definite disease, because of a growing conviction that the knowledge of these more exact methods of diagnosis has not resulted in their employment to any such degree as their value warrants. I recognize, however, a greater tendency among physicians to rely upon them in certain classes of cases.

It seems unwise to enter into any lengthy statement here of the value of these methods. I assume that their usefulness, under favorable circumstances, is generally admitted, at least theoretically. But in order to get clearly in mind the wide range in their application for diagnostic purposes, I shall give briefly a partial list of diseases in which they are helpful. The examination of sputum for tubercle bacilli in suspected pulmonary tuberculosis, of cultures from the throat for diphtheria bacilli, the *Widal's* test of blood for typhoid fever, the examination of the blood for malarial parasites and also

for evidences of a suppurative inflammatory process, the search for gonococci in the urethral discharge, and the examination of the urine, both chemical and microscopic, for evidences of nephritis, will occur to all as among those most frequently employed. But these are only a few of the pathological conditions in which chemical, microscopical or bacteriological tests prove useful. In the various anemias, including leukemia and pseudo-leukemia, a careful blood examination establishes the correct diagnosis, and by its means we are learning that pernicious anemia and leukemia are by no means so rare as previously supposed to be. The presence of a leucocytosis, shown in the same way, may differentiate pneumonia from certain conditions simulating it, while a differential count of the leucocytes may give the key to the situation in a case of trichinosis. Blood cultures are throwing light on obscure cases of infection with pus organisms, typhoid bacilli or the so-called para-typhoid bacilli. Sputum examination may be made not only for the tubercle bacillus, but also for evidences of secondary infection in pulmonary tuberculosis, and for elastic shreds indicating the destruction of the lung tissue. The presence of pneumococci or influenza bacilli in sputum may be of importance in diagnosis. Microscopic and chemical examination of the stomach contents throws light on the simple inflammatory, ulcerative or neoplastic processes occurring there; while microscopic examination of the stools for food particles, pus, protozoa and eggs of the various intestinal worms is being considered important. The common tests employed by all physicians in urine analysis frequently need to be supplemented by more exact ones, not only chemical, but microscopic for blood and pus and for the source of these if this can be determined, also for pathogenic bacteria, as the tubercle bacilli or typhoid bacilli, in the freshly voided urine, and even for bits of tumours. And, lastly, as long as the early recognition and removal of malignant growths is the *sine qua non* in their treatment, the

importance of removing small bits of the suspected tissue, either by curettement or excision, and subjecting them to careful microscopic examination cannot be too strongly stated. This incomplete list is enough for illustration to remind us of the many-sided usefulness of these methods.

My immediate purpose in the preparation of this paper has been to find out and indicate here the extent to which these laboratory aids are now employed in this state; the facilities which are offered for such purposes; and, further, to suggest if possible certain ways in which the frequency and value of such examinations may be increased.

First, how generally are these methods now employed? I was already familiar with the conditions in my home-city, and with the extent to which many of the physicians in that part of the state now rely upon laboratory aids. In order to obtain the desired information from different parts of the state I wrote to the health-officers of most of the cities and larger places of the state, and to a few of those in the smaller towns, asking each whether it is his custom as health-officer to have specimens sent to a laboratory for examination in suspected cases of diphtheria, typhoid fever and pulmonary tuberculosis, and also requesting his opinion, if he was willing to express it, regarding the extent to which such methods of diagnosis are employed by physicians in that section of the state. Replies were promptly received from most of these physicians, and I wish here to express my appreciation of their kindness in answering these inquiries. Several of them also offered suggestions as to the reasons why laboratory methods are not more commonly used, and mentioned ways in which they thought this might in part be overcome. I have received my information from thirty-two different places in the state. The reason for choosing the three diseases mentioned, tuberculosis, diphtheria and typhoid fever, for purposes of inquiry, was that these are the ones in which such ex-

aminations are most frequently made, that municipal laboratories, where they exist, provide particularly for the examination of specimens from these three diseases, and that if a physician in general practice does not employ laboratory aids in these it may be safely assumed that he does not in the many other conditions where they are applicable. From the information received it appears that in addition to Hartford and New Haven, each of which has, for some years, had a city laboratory, there are four other places in the state where provision has been made for the examination of specimens for physicians, without expense, in the case of the three diseases mentioned. These are Middletown, where through the courtesy of those in charge of the laboratory of the State Hospital for the Insane, physicians of the city, and I think of the entire county, have the opportunity of sending specimens to that laboratory for examination gratis; Waterbury, where an arrangement exists with a bacteriologist in another city by which specimens may be sent in the same manner; South Norwalk, which reports that a similar plan is there employed with satisfaction; and Norwalk, which was just completing such an arrangement at the time my information was received, and has probably put it into effect before this. If other towns or cities have furnished means for the examination of such specimens without expense to physicians I have overlooked them. This leaves such places as Bridgeport, Meriden, Norwich, New Britain, Danbury, New London, Derby and Ansonia, Stamford and the smaller towns without any such provision for gratis examinations.

To judge of the extent to which physicians avail themselves of these opportunities I have relied chiefly upon the reports published by the health boards of New Haven and Hartford. In each of these cities the municipal laboratory has now been established several years, and it is probable that every physician in each of these places is aware of the existence of such a laboratory and of the work which it does. According to the report of the

Hartford laboratory for 1904, 1,213 cultures from suspected cases of diphtheria were made, 398 of these showed the presence of the bacilli, all but six of these latter being from cases in the city. There is nothing in the report to show how many individual cases of diphtheria these came from, but as the report shows that there were 235 cases of the disease in the city during the year it seems fair to assume that the great majority if not all of these had the diagnosis confirmed at the laboratory. Eight hundred and thirty-five of the cultures did not show the presence of diphtheria bacilli. The test for typhoid fever was made eighty-five times, with a positive diagnosis of this disease resulting in forty of these. This method appears to have been employed in about sixty per cent. of all cases of the disease occurring in the city during the year.

In New Haven in the year 1904, the published report shows that two hundred and seventy-seven cultures from cases of suspected diphtheria were made, one hundred of which gave positive results. During this period one hundred and forty-six cases of this disease were reported to the board of health. Allowing for second cultures in some cases it seems probable that about two-thirds of the reported cases were confirmed by bacteriological methods. It may be of interest to notice that a considerably larger number of cases of diphtheria were reported in Hartford than in New Haven, and this suggests that the much more general employment of the cultural method of diagnosis in the former city brings to light cases that are overlooked in the latter place. At the New Haven laboratory one hundred and ninety-three tests for typhoid fever were made, of which seventy-six were positive. About fifty per cent. of the diagnoses of typhoid fever appear to have been confirmed by laboratory methods. Also two hundred and forty-four samples of sputum were examined for tubercle bacilli which were found present seventy-nine times. My data from the other cities in the state furnishing means for labora-

tory examinations without expense to the patient are not sufficiently complete to make use of, but indicate that laboratory aids are not as much relied upon in diagnosis there as in the two cities mentioned.

The extent to which these methods are employed in those parts of the state where the boards of health or town officers have made no provision for such work seems to vary much. In general the physicians in those places where private laboratories have been established, or who have ready access to laboratories in neighboring cities, even though no gratis examinations have been provided for, make much more use of this means of diagnosis than do the physicians in towns, even of considerable size, where such laboratory facilities are not at hand. Thus in Bridgeport where no municipal laboratory is furnished for physicians' use, a few of the younger members of the profession have given special attention to laboratory work and have provided facilities for this. A careful estimate made by one of these physicians, after conferring with others engaged in the same work, shows that the average number of specimens examined for each physician in the city is not so very much less than is the case in New Haven where there is a free municipal laboratory, being two-thirds or three-fourths as great. In fact the number of tests made for typhoid fever is greater than the number reported from the Hartford laboratory during the same time. Also the health officer of West Haven, where physicians can have ready access to the laboratories in New Haven, but without gratis examinations, writes that about one-half of the cases of typhoid fever and diphtheria reported to him have already been verified by laboratory examination.

In contrast to these the reports from most of the cities of the state indicate that the laboratory facilities there are poor or entirely lacking, and the use made of laboratory methods is much less. For example from one city of a population of 25,000 the report comes that a very few cases where symptoms are mild and much doubt

about diagnosis existed have been examined bacteriologically, and that this shows the usual custom among physicians there. In general the information received is that laboratory aids in the cities and towns of this class are used but very little and only in very doubtful cases. As reasons for this the health-officer of a city of nearly thirty thousand writes: "Expense is considered of more importance than a verification of the diagnosis. In your investigation of the subject I think you will find this idea almost universal." Several others agree that the expense is the great drawback to the more general adoption of laboratory examinations, and express a desire for a state laboratory where such work can be done gratis. Another writes: "I am certain that the physicians of this vicinity have not made use of the laboratory tests unless in very exceptional cases, not because they do not believe in these methods, but I think chiefly because it was inconvenient and took time to send out of town." It seems to me that he has here given the chief reason why these methods are so little used in many parts of the state, and in it is contained the suggestion of a way to increase their use. I quote from another: "As health-officer I make no use of laboratory methods at present. Not long ago I presented myself to the selectmen of the town and gave them a little talk on the advisability of utilizing some one of the laboratories near us. I did my best to make them see that many doubtful cases of diphtheria or typhoid fever might be diagnosed early that would go undiagnosed at all and thus be a menace to the people. I asked them to allow me to have these made at the expense of the town. As yet I have no reply from them. When it does come it will probably be unfavorable. Nevertheless I think it a step in the right direction. As a physician I always try to verify a diagnosis in a doubtful case by laboratory methods." He adds that "the younger members of the profession in this vicinity, I am quite sure, make use of the microscope in doubtful cases. Some of

the older men do not." In contrast to this another reports that he has never had occasion to send any specimens to a laboratory since he became health-officer and that he has not known any doctor in the town to do so. It seems unnecessary to further emphasize the slight extent to which these methods are generally employed throughout the state.

The facilities which now exist in the state for laboratory examinations have been in part indicated above. In addition to the city laboratories in New Haven and Hartford, there are two private laboratories in each place where such work can be done besides the Yale Medical School laboratories in the former city. Middletown has the laboratory of the Hospital for the Insane. In Bridgeport eight of the physicians have the means for doing work of this nature. A small laboratory has recently been fitted up by one of the physicians in Litchfield, and a very little work of this kind is done by physicians in New London and Danbury. These include, in so far as I have been able to learn them, the laboratory facilities of the state, exclusive of those in the hospitals and of those used by a few physicians in their own practice.

In what way, if any, may these facilities be increased and made of greater value to the profession? The most obvious method, and the one most frequently urged by those from whom I have heard, is the establishment of a state laboratory where such specimens as have been referred to here could be examined free. The State Board of Health has taken active measures to procure such a laboratory, and it is to be hoped that their efforts will be successful, as it now seems probable they will be, at least partially. Numerous advantages, which are for the most part self-evident, would arise from this. To my mind the most important one would be, not the lessening of the expense to the patient, for in the majority of cases this is not an undue burden, but the prominence which this means of aid in diagnosis would receive by the attention which could be called to the work of such a lab-

oratory by the Secretary of the State Board of Health. But the establishment of such a laboratory by no means fully solves the problem of how to get the most possible good out of these modern aids towards exact diagnosis. The general scope of such laboratories, if I understand it correctly, is to examine only a few kinds of specimens for the physicians, for example the three above mentioned and possibly one or two others. These are at present the chief ones in which laboratory examinations are here considered necessary from the standpoint of preventive medicine. But recalling the partial list of diseases given above in which such examinations are desirable, it is evident that a state laboratory, or municipal laboratories as they now exist, can meet the requirements to a small extent only. A case of appendicitis requires a correct diagnosis as much as a case of typhoid fever does, and the diagnosis of pernicious anemia or leukemia is certainly as hard as is that of pulmonary tuberculosis; but in order to be of assistance in such cases the clinical pathologist must be sufficiently available so that he may see the patient and secure the necessary specimens himself. Also the differentiation between a malignant growth and an inflammatory process, or a tubercular lesion, by an examination of the tissue, is at times of the greatest diagnostic value, and we can hardly expect work of this nature to be done at a state laboratory. The question, to my mind, resolves itself into the possibility of having laboratories sufficiently well equipped to do the common work required of them and in convenient places, or the probability of having to do largely without these aids at all.

What are the chances of having such laboratories established? Within certain limits I believe that they are good. Those graduating in medicine to-day are already somewhat familiar with the methods used in such work. As a rule though they are not by any means fitted, without further training, to take up the work independently

and carry it on successfully. If this is attempted they will bring discredit upon the methods employed. But a few additional months spent in the practical work of a good laboratory would enable them to make most of the examinations required satisfactorily. Some of the more difficult ones, such as those for the diagnosis of tumor growths, for example, would presumably still have to be sent to the larger laboratories for examination by others of wider experience. But such local laboratories, in charge of physicians equipped as described, could be made important factors in utilizing these well-recognized means of diagnosis. I am now watching with interest the development of one of these laboratories in one of our smaller towns, and there seems no good reason why several of them should not be established in the cities and larger towns of the state by co-operation between physicians already in practice and those just graduating in medicine. The result would be advantageous to all.

The paper was discussed with interest as follows:

Dr. Sullivan: The plea for more frequent recourse to the use of the microscope is a just one, and no doubt would be beneficial to a large majority of the profession, if they understood more fully the limitations and scope of this great aid to diagnosis. But many like myself who were graduated twenty years ago knew little then of the great usefulness of the microscope, and even now view it with a certain feeling of suspicion. I heartily endorse the claim made by the writer, but as heartily disapprove of any medical man accepting the microscope as infallible to the abandonment of his own mentality. When they do this they make the revelations of the microscope *"ex cathedra,"* and we are subverting our mentality to the inanimate lens. This I maintain is wrong, and the infallibility granted to the microscope is frequently the cause of serious error. I have in mind a recent case at St. Francis' Hospital, when the microscopic examination by one of our ablest men revealed a carcinoma of the

arm and immediate amputation of the shoulder joint advised. This was objected to by the family physician, who is here present, and instead of taking the arm off sent the patient home and to-day she is singing at her day's work, oblivious of her narrow escape from the oracles of the microscope.

Another case lying at present at St. Francis Hospital, in which the abdomen of the patient was opened some eighteen months ago, the microscope decided the case too malignant and consequently inoperable. The attending surgeons therefore closed the cavity and left the patient to her fate with the microscopic seal upon her. But, I am pleased to state, clinical mentality again triumphed over the microscope, and the patient is now convalescing from the dangerous operation which was more hazardous at this late day because of the microscopic error.

In view of cases of this character, you cannot expect us to use a microscope more generally in the decision of doubtful cases until you can convince us that the time has arrived when you can tell by your microscope a positive difference between tissues tubercular, inflammatory or syphilitic, and this I believe no microscope can do. It is because of these well-known inaccuracies our Board of Health, who willingly extend their services to the medical profession, are not better patronized. In my experience as health-commissioner for three years in this city, I knew of but one application made for the examination of a tubercular specimen. This, no doubt, is to be regretted, for in many cases we do know of the valuable assistance rendered by the microscope. But granting this, I firmly believe it is wrong in any case to subvert one's mentality and accept the microscope as final. And to conclude, Mr. Chairman, the expert testimony of the microscope in the courts and medicine should be accepted with the same feeling of uncertainty as the expert testimony in a court of justice.

Dr. Bunce: I believe that one of the reasons why the

microscopical examination is not made in cases, is through the wishes of the practitioner. I think very often the practitioner makes a diagnosis and he really does not care to go beyond that, and so I think sometimes that is the reason why the microscopist is not employed. It is not the expense of the matter, but it is because of the general lack of interest in making an examination with the microscope. I think around here in Hartford the use of the microscope in a clinical examination is much more sought after now than it was ten years ago. I am sure ten years ago very little of that work was done around here.

Dr. F. S. Smith. In one case in this connection as Health-officer a case of diphtheria was reported to me, and in two weeks after that the patient was ready to be discharged. The infection had been complete, according to my ideas, no cultures had been made, and when I talked with the attending physician about it he said that he did not consider it was necessary for the woman to go to the expense of having the cultures made. I asked him if he felt sure of his diagnosis. He said he always made it a point to diagnose simply the more serious cases where there was any question. It is a case where on the one hand the patient is compelled to be confined unnecessarily and put to extra expense, or on the other hand, the public are to be endangered by letting him loose too soon. Now in this case, and in all cases of a similar nature, an examination would have settled the matter beyond a question. Whether or not the physician will be confirmed in his diagnosis may be an important point to him, but it seems to me that the aid of the microscope could be called upon early enough so that he need not suffer in his reputation if he has to back down.

Dr. Garlick: Mr. President, I would speak of the advantage which I have personally derived from the private work spoken of by the writer, having used it frequently, and the mutual benefit which I believe accrues to myself

and to my patients. Not that I would abandon my mentality, but I would hold it in abeyance until the microscope comes to my aid, to correct or disprove it, and I would not even then, nor do I yet, abandon my own judgment in the matter, but I cannot speak too positively of the benefit which I am continually deriving, and the positive benefit which I know accrues to my patients.

Dr. Foster: There is one point that is of considerable interest, it seems to me, in regard to the amount of contagious diseases in Connecticut, and that is this, that in Middlesex county for the past ten years there has been considerably more contagious disease, diphtheria and scarlet fever, I think, than in the other counties according to population, and also the death-rate has been considerably higher. I judged from what Dr. Bartlett stated that their opportunities for examining diphtheria exudates are much less there, and it seems to me quite possible that cases are neglected there which are supposed to be tonsillitis, but which in fact are diphtheria, and perhaps if greater care was taken in making the diagnosis earlier, cases of diphtheria would be isolated and would be less there. I think that it is very important to have opportunities for examining diphtheria exudates, and it seems to me that it is the province of the state and counties to do that. I hope we will ask the state to make examinations, for me. It seems to be a question whether one can ask for an examination of tumors and things other than substances relating to infectious diseases. I think that the state, or at any rate the counties or cities, ought to furnish opportunities for an examination of infectious material, and it seems to me a very important point in preventing contagion, that this opportunity should not be omitted; and if it is not accomplished by the state or counties, the county societies ought to take it up. It would not be a difficult matter to establish private laboratories connected with the various societies, and they

would be able to do a fair amount of work in assisting physicians in their respective counties where now there are no laboratories, in the question of the diagnosis of diphtheria and other contagious diseases.

Dr. Abrams: I hope, Mr. President, that the time will come when the State of Connecticut will have such laboratories that physicians may have free and abundant use of them. The time has gone by when any person living can say that he made a positive diagnosis of diphtheria, or can say that the case is not diphtheria simply upon his examination without the use of microscope; and I say that after some experience, and it has been rather humiliating, too, I once jelled myself, after seeing a very large number of cases of this disease, that I was pretty sure whether a patient had diphtheria or not, but since I have come to depend upon the microscope more I have found that I was making a great many mistakes before, and I should have made a great many more since had it not been for that. Not only is it invaluable to the physician, but it is a great protection to the family and to the public, and the only thing which I think prevents its more general use now, is the lack of service, particularly in the smaller towns, of course. In the cities we do not use it as much as we ought. The microscope may not be infallible, but it comes a great deal nearer it than the human eye or the human mind unaided by the microscope.

Dr. Steiner: I think we forget very often that these laboratory aids to diagnosis are aids to diagnosis. Some consider that they alone will differentiate the disease, but that is not the object—that is not the way that we should consider them. Just as frequently in an examination we have to consider inspection, palpation, percussion and auscultation, so we must consider the laboratory aids along with our other means. Frequently all our aids to diagnosis are not sufficient, and we feel like exclaiming with Jacob Herd of old, "O Lord, open thine eyes; and behold the poverty of our art." But these lab-

oratory aids do help us. I heard of a case recently of pernicious anemia in a negro. This case came to a New York Hospital, and one of the visiting physicians showed it to some men, who were taking an examination for internes there. Three men were taught at one institution that if there was any paresthesia in a patient, to ask for a blood examination. They heard during the recital of the history of this colored man, that he had some paresthesia, and these three men, from one of the medical schools in New York, asked for a blood examination and the diagnosis was apparent at once. This is only one example of how important these laboratory aids are in diagnosis. They should not be considered alone; they should be considered with the other signs and symptoms, and if they are thus considered in a case, I think they will give great aid in diagnosis. Of course there are some diseases which can be diagnosed by the laboratory alone, but they are few. Laboratory aids should be considered as laboratory aids and should be taken as such.

Dr. ———: I wish to say a word in regard to the use of the microscope in tuberculosis. Many practitioners make a mistake in relying on the examination in making a diagnosis of tuberculosis. It is well to remember this: that by the time you find your bacilli in the sputum the disease is pretty well advanced. The practitioner should make his diagnosis previous to that, and a diagnosis cannot be made in a majority of cases by physical examination. As a rule you do not get bacilli until you have a breaking-down of a tubercle in the lungs, and by that time your patient is well advanced in tuberculosis. But later on as a relative, as Dr. Steiner has said, as a relative aid to surgery, the microscope no doubt is of great help.

Dr. Baucher: Mr. President, one of the gentlemen spoke of the necessity in many cases of telling where the toxins came from, and I am quite sure if we were familiar with microscopic work we would know the desir-

bility of knowing the location of it, and so much as we could, the disease, and it helps very much indeed in giving a diagnosis. The point made by Dr. Steiner, that these are aids in diagnosis, I am very glad he did make, and that is a very important point. In regard to these laboratories, which it seems to me it is necessary to establish, it is very desirable that if possible they should be free laboratories where one can have specimens prepared for patients, and as many different kinds of specimens as possible, but if they cannot be free laboratories I believe in neighborhood laboratories, which are more important in many respects than a laboratory where gratis examinations can be made at a distance. Physicians will not send them to a great distance, in my opinion.

MEDICAL PAPERS.

THE PREVENTION OF VENEREAL DISEASES.

R. A. McDONNELL, M.D.,

NEW HAVEN.

There is a fundamental difference between venereal diseases and all others, which offers and will always offer a most troublesome obstacle to their control. This difference arises from the fact that they are acquired in satisfying a natural appetite. While other diseases, like typhoid fever, smallpox, and tuberculosis are contracted through pure carelessness, venereal diseases are acquired through voluntary exposure. The former class of diseases, then, can without doubt be ultimately stamped out, or certainly be controlled, by a process of popular education, which will make all men familiar with their danger and the ways in which they are contracted. It is inexcusable that anyone, not inspired by some noble impulse like family affection or professional zeal, would, if he understood the danger, knowingly expose himself to smallpox; but it is equally certain that very many people impelled only by an appetite, will with full knowledge of the danger, expose themselves to the possibility of gonorrhoea. Therefore, it would seem only just and right to let such people look out for themselves, and suffer the consequences of their folly. But, unfortunately, the penalty is not always wholly paid by the culprit. The sins of the fathers descend upon the children, faithful wives suffer for the transgressions of faithless husbands, whole families are made unhappy by the iniquities of one member, and even innocent strangers are placed in jeopardy by venereal patients.

This is not right, nor just, nor legal. The moral and the civil law agree that every man shall be secure in his right to undisturbed enjoyment of his individual health and happiness, in so far as it shall not conflict with the

rights of others. Just so soon as one individual injures the health of another, or even places it in danger, he has interfered with that individual's rights, and should be held responsible. This right to protection from venereal diseases is undoubted in the case of marital intercourse, but is somewhat different in those indulging in illicit connections. In the latter case the law would hardly protect the injured party. It is as though two persons, contrary to law, engaged in a prize fight and one was killed; his heirs could not recover, because the law presumes a contract between the principals to fight under certain conditions and suffer whatever consequences may ensue.

It is not, however, for those who knowingly and willfully expose themselves that we are chiefly concerned. It is for those who do not understand the danger, and for those who are entirely innocent.

It is not necessary before this body to describe how prevalent venereal diseases are among the very young and ill-informed. In all large preparatory schools and colleges gonorrhea and syphilis are shockingly frequent. Very many of the children of our public schools are afflicted. Young people in shops and factories are frequent sufferers. This is so well known to you all that it will be accepted at once.

The profession has learned only comparatively recently of the wide prevalence of gonorrhea in respectable married women. Sterility, cystitis, pyosalpinx, and pelvic abscesses are more often caused by this disease than by any other, and are exceedingly common.

Blindness of the new-born is a catastrophe not infrequently witnessed, and is usually due to gonorrhea.

Divorce, with its attendant evils—poverty, disgrace, and the recklessness which leads to crime, are the not infrequent sequels of venereal disease.

There is no question, then, of the necessity for doing all that can be done to prevent the spread of such diseases. Fortunately, the medical profession in this coun-

try is being awakened to a sense of its obligations in this direction. Last summer a symposium on venereal diseases was held by the American Medical Association, at which some very able papers were read, and the practical result has been the appointment of a national committee to consider the subject further. Most of the state societies, including our own, have appointed committees to act in conjunction with the national committee, and a general campaign of education is being inaugurated.

A good deal has been attempted in foreign countries to control the spread of these diseases by law. We are all aware of the laws in France and Germany which regulate the practice of prostitution, and we are also aware that it is to these very countries that physicians go to study syphilis and gonorrhea. Therefore the law has not prevented or even greatly limited the most widespread prevalence of these diseases. In this country there is a strong prejudice against legalizing prostitution, even though it would probably control a very prevalent evil, because by legalizing it a certain permission would be granted to all to make use of it. It is the same sort of sentiment as that which prevails so widely against the licensing of saloons. We all remember the recent crusade against the army canteen, and the intelligent opposition to its abolition by army officers. Men will get drunk, in any event. Men will consort with prostitutes, whether they are licensed or not. In the one case, some supervision may be exercised over the traffic, in the other it must go entirely unregulated. No one believes that any girl would become a prostitute just because the law allowed it. Indeed, in France, where the system is probably the best in the world, so many restrictions are laid on those entering the ranks, and so many obstacles are placed in the way of girls who are about to be enrolled, that not a few are deterred from taking the step. When once inscribed as prostitutes, such supervision is exercised over these women that very few venereal diseases, comparatively, are contracted from them. We may say,

then, that laws patterned after those of Paris would control pretty well the spread of diseases by professional prostitutes. But the Parisian laws fail utterly to limit the spread of these diseases by clandestine prostitutes, and it is to this class of women that any effective legislation in this country should be directed. How can we reach them? Few complaints would be made against them by their victims from very shame, if the accuser's name were to become public property. But if an officer could be appointed, whose business it was to receive such communications confidentially, and who had the legal right, more complaints would be made. Such an officer would have to be a man of the highest character, for he would have the right to invade our very homes, if need be. Furthermore, he should be answerable to a board of commissioners, who would deal severely with him in case of misconduct.

Such a law as is proposed, then, would combine the following features:

- (1) Voluntary enrollment of prostitutes, under proper restrictions as to age, condition of health, previous history, etc.
- (2) Medical examinations at proper intervals, by physicians regularly appointed, of all enrolled.
- (3) Compulsory hospital treatment (at their own expense) of all found diseased.
- (4) Imprisonment of all clandestine prostitutes convicted of this offense.
- (5) The appointment by each police board of an officer, who shall receive privately all complaints against diseased prostitutes, whether enrolled or clandestine, with power to investigate, and, when found necessary, to isolate such cases. This officer shall also receive complaints privately against any man accused of conveying a venereal disease, and have the power to compel him to have proper treatment.
- (6) It shall be a misdemeanor, punishable by a heavy

fine or by imprisonment, for either a man or a woman to convey a venereal disease to another person.

Such a law as the foregoing would, without any question, do a great deal toward checking the spread of such diseases. But it would by no means stamp them out. Indeed, nothing will ever do that, in all probability. The only measure which would be really effective is the avoidance of exposure, and to secure that, we must work upon the individual. People are prevented from wrong doing for most part by three different reasons: First, natural disinclination; second, moral obligations; third, fear.

Now, we ought to use these considerations as much as possible to prevent people from taking voluntary chances of contracting venereal disease. The natural inclination one way or the other is beyond our control, and moral reasons are more distinctly within the province of the parents and religious instructors of our youth. But fear, a most powerful, if ignoble, sentiment, probably prevents more crime and misery than the other two together, and this we can use. Surely we may be pessimistic enough about gonorrhoea and syphilis to frighten some into remaining virtuous. The average duration of an attack of gonorrhoea, all advertisements of the new silver salts to the contrary notwithstanding, is several months. Its possibilities in the way of suffering and permanent damage are sufficiently appalling. Syphilis always lasts at least two years, and in many cases, though carefully treated, much longer. These facts ought to be in the possession of all persons over sixteen years old, and it is our unavavoidable duty to see that they are. Now, how shall we get them before the public?

First, through the family physician. Let him inform parents of the prevalence of venereal diseases among the young, and their consequences. Let him tell every parent he meets about the sad cases which have come to his notice, and urge him to warn his children about these things.

Furthermore, let him abandon the prevalent attitude of disdain and indifference with which he treats gonorrheal patients. This disease is not trivial, and no physician who undertakes to treat it has the right to give the patient a false impression about it. If the public could be made to understand how serious it really is, much would be accomplished.

Second, by means of lectures. Sexual subjects may be handled by a competent speaker in a decorous and dignified manner which could give offense to no one, and those who came to hear salacious tales would go away with something new to think about. Such lectures ought to form part of the curriculum of high schools and colleges and be given to select classes in the Y. M. C. A. No boy or girl ought to be able to say, "I wasn't warned."

Third, by carefully written papers, copies of which could be handed to suitable persons by physicians as occasions arise. Bearing the endorsement of the family doctor, they would have a weight which no chance article on the subject could have. Such papers should describe the various diseases, and their consequences, in a language that anyone could understand.

If these measures could be carried out, there is no doubt, surely, in anybody's mind that venereal diseases would be less prevalent than they now are.

There is one other phase of the subject upon which we need not dwell in this paper. I refer to prophylaxis, after or during actual exposure. Gonorrhea can almost certainly be prevented by injecting a one per cent. argyrol or a ten per cent. solution of silver nitrate, into the fossa navicularis within a few hours after exposure. Syphilis can often be prevented by soap and water, followed by ablutions with some antiseptic. Ulcers molle may be prevented in the same way, but the precautions must be taken immediately after the exposure, for the last two diseases.

It seems to the writer, that such knowledge as the foregoing should not be put into the possession of the

layman except in unusual cases. A healthy fear of contracting disease will act as a deterrent, and total avoidance of danger is the thing we are aiming at. If the layman is obliged to go to a physician for such treatment, that will be some trouble and expense to him, and will be salutary.

In the German army, however, the plan of instructing the soldiers in the use of prophylactics has reduced enormously the number of men affected, and others may disagree with the writer about the advisability of teaching the layman these things.

In conclusion, it is strongly urged that we get to work and do something along the lines laid down in this paper. Much is being done in other states, and Connecticut should be numbered among the leaders in preventive medicine.

DISCUSSION.

Dr. Moulton: Mr. President, it seems to me that the subject of this paper is one that is of very great importance, and one that is shamefully neglected by the medical profession. The prevalent idea among the laity, that gonorrhea is nothing worse than a bad cold, and many patients say they would sooner have gonorrhea than a bad cold, should be combatted very decidedly, and it seems to me that the profession is very lax, particularly in this matter of education. I think that the profession ought to take vigorous action to see that the preparatory schools, the high schools and the institutions of that character in the State of Connecticut, provide suitable men to lecture to their students in regard to the extreme dangers, not so much to the individual, as to the family. There is a danger of latent gonorrhea which apparently has been cured, in after years breaking out and infecting the wife, causing her serious trouble and possibly necessitating operations that will unsex her, and make her entirely sterile; or, what is perhaps worse, will bring children into the world with opthalmia which will go

on to blindness. It is a subject which, particularly in New England, has been looked at as beneath the dignity of respectable people to talk over, and I think the attitude is entirely wrong.

Dr. Strosser: Mr. President, I certainly agree with everything that has been said in that paper, but there is one point which I think has been overlooked. The idea of having our school pupils educated in this matter only touches a very infinitesimal part, and I think there is where we would be lacking. Only a small percentage of our population which go through the high school will have the benefit of it. It may benefit the young men, but where does the female population come in? I think the danger lies more in the ignorance of the uneducated classes, and the uneducated classes mostly incline to frequent houses of ill repute. I think if we found some way of educating the female population instead of the male, it would be more effective. Females are more apt to suffer than males.

There is another point. The doctor mentioned in his paper the different ways of prophylaxis. Now, gentlemen, I am a firm believer, in houses of ill fame. As long as we cannot have anything better, I am a firm believer in houses of ill fame under absolute supervision, under medical control. Berlin and Dresden, over in Germany, form a good comparison between the two ways of doing business, if we want to come right down to the point. Berlin has no houses of ill fame, and has about 50 per cent. more of prostitutes suffering from venereal diseases than Dresden. Dresden conducts houses of ill fame under municipal control, has regular medical inspection and protects its population. We cannot stamp out the desire, but we ought to limit as much as possible the propagation of this evil. In the line of prophylaxis, in the German army the common soldier is provided with a nitrate of silver solution to use, and since that has been done venereal diseases have certainly gone down about 50 per cent.

Dr. SULLIVAN: I rise to second the motion of the first speaker, but before seconding that I sincerely trust that the time will never come when in the public schools of this country the curriculum will be established that our sons and daughters will be acquainted with the literature of gonorrhea in all its features. I for one would certainly not sanction any such teaching as that. But the suggestion that the work of this committee be continued I think is a very good one. If the Connecticut medical men want to stop the social evil, let them be the first to get in the way and prevent it. It has been stated that the greater part of these diseases has not been found in the old-timers, but the disease is really contracted by the young and inexperienced. Here is a sad feature. The first inquiry that the young and innocent lamb will make, on visiting a house of prostitution, is, have you been examined, and to give him a guarantee of surety, before him is heralded a certificate signed by a legitimate practitioner's name. And such men are holding positions not only high in your society, but high in the executive offices of your city. It has been my pleasure to investigate this particular subject in Hartford, and to my chagrin and mortification I have to tell you that two hundred prostitutes in the city were provided with certificates signed by legitimate practitioners. If you are going to denounce this evil, the first thing must be done by medical men who call themselves dignified, legitimate and respectable, by refusing to bastardize their good name by attaching their signature to any such certificate.

And I say then that that name which is put to that certificate gives to the young men a false feeling of security which they do not enjoy, because any man who is familiar with this horrible evil knows that the examination made is worthless, and the practitioner who gets a fee of two dollars for it is as contemptible in my eye as the abortionist who deserves a place in the State Prison. The dirty speculum he uses in the case of one he uses

for all, and receives his fee of two dollars apiece, and then his name adorns the walls of these houses of prostitution.

I second the motion¹ of the first speaker, and allow me to add that this suggestion be given to the committee,—let us make an appeal that all respectable medical men refuse to visit these brothels of prostitution, and much less sanction them by our certificates.

Dr. Donaldson: Mr. President, I regret very much that there has not been a formal report of our committee, but I want to endorse very much the remarks that have been made, and especially the paper of Dr. McDonnell, the chairman, and to state further that I do not believe that we can fight this disease on the moral and religious grounds, and that we as a medical profession have it almost entirely in our hands to combat this disease. We have the laity well educated on the prophylaxis of tuberculosis, scarlet fever and smallpox—no, not smallpox, excuse me—but the other contagious diseases we have them pretty well educated on the ground of fear. Now just as we enlighten the laity we will gain ground. We cannot do anything by law; we cannot force a man to do anything, but we can scare him into it. The German physicians, a large number of them have used a private circular gotten up in different ways, but a very concise circular, nicely printed and nicely worded, is used by a great many now to hand over to their patients. Their families are instructed through this little circular, through the head of the house, as to what these venereal diseases are, how contracted, and the dangers. It is now being done by some of the leading professional men in the country, and I believe that is the best and most feasible way of attacking this disease. If the members of the Connecticut Medical Society would distribute such a neat and concisely worded little pamphlet among the families, a great deal of good would be done.

¹ FOR ACTION TAKEN SEE PAGE 34.

Now in regard to the prophylaxis, an excellent paper has been written upon this subject by one of the Assistant surgeon generals of the United States army, who has spoken a great deal and read a great deal upon this subject, and I believe that there is now in existence among the army surgeons a practice of instructing their men in the methods of prophylaxis, and the report is that they are accomplishing a great deal along that line among our army men, and in the navy also. I hope this committee may be continued. We are working in conjunction with a similar committee of the American Medical Association, and if the members will co-operate with us and some such little circular can be used, I believe a great deal can be accomplished in the education of the laity.

THE GAYLORD FARM SANATORIUM, ITS PURPOSE AND RELATION TO THE STATE.

J. P. C. FOSTER, M.D.,

NEW HAVEN.

Mr. President and Gentlemen:

I wish to express my appreciation of the courtesy of Dr. Howe in yielding his place to me, as the few words that I have to say are written at the request of the Directors of the Sanatorium of which I have the honor of being the executive chairman, in hopes that I may bring before you gentlemen, the purpose of the work that we have undertaken during the last two years.

The war against tuberculosis has become almost universal. Every day new societies are springing up, called into existence by the knowledge that this most universal and destructive disease can be controlled by intelligent and determined effort. The laity are in sympathy with our profession in the work, and their co-operation is essential to our success. It is a very striking fact that so much confidence is felt that a disease can be controlled that only a few years ago was regarded as incurable. This confidence is the development of the great truth that is now accepted by every intelligent physician that tuberculosis must be ranked with curable diseases. The reason for the change in the attitude of the profession is not the discovery of any new drug. The search for some specific for tuberculosis has practically terminated with the firm conviction in the minds of the workers in that line that no drug has any control whatever over the development and progress of consumption. Early and accurate diagnosis is, and is to be the most important factor in the treatment of the disease, and to this is to be added the great truth that pure, clean air is the long sought remedy.

It is no new thing for men to recover from tuberculosis. Sufferers fortunately placed have been recovering for years. I am sure that nearly every one of the able physicians present has been often told by his patients that they had been informed years ago that they had consumption and that they were perfectly well now. These fortunate beings usually attribute their cure to a mistaken diagnosis and give no credit to their physician for his skill in caring for them. It may be interesting to know that the late President Day of Yale College was treated for tuberculosis when he was nineteen years of age. After his death at the age of ninety-three the autopsy showed a scar on his lungs, and the accuracy of the diagnosis was confirmed. Such cases can be found everywhere, and under the light of our new conception of the disease cease to be remarkable. The first great truth, then, in the study of tuberculosis is its curability.

For very many years the marked improvement of sufferers from this disease, after a change of climate, was perfectly well understood, and it became a foregone conclusion when the disease was well established that those who could afford it should leave home and friends in search of that specific climate where consumption could be cured. The improvement that came to such of these cases as were not past relief was attributed to some peculiar quality of the air, to the exudations of the balsamic trees, to heat, to elevation, to dryness, to every peculiar feature that could be thought of as attached to any of the favored resorts.

It is instructive and bears to a very important degree upon my subject to consider the history of the climate treatment in our own country during the past forty years. Florida, South Carolina, Asheville, Colorado, Arizona, New Mexico, and Southern California have all in turn been pronounced essential to a cure. For years no one thought what was being accomplished for the patient by cool, open air, and freedom from business cares. It was not believed that it was the pure air, but improvement

was invariably attributed to the peculiar virtues that lurked in the climate. To go home from such a climate meant death, so patients believed and were led to believe. It must certainly be apparent to any careful student of this subject that the claims of the various resorts are largely due to selfish interest rather than to any special virtues of climate. I know that I am on very dangerous ground. I understand that the influence of long usage has possession of the professional mind and that nearly every doctor has his favorite resort for tuberculosis. I also wish to state clearly that I personally think that for the rich the milder and more attractive resorts are desirable. But I wish also to state with the fullest confidence that tuberculosis can be cured in our own state, and that treatment properly conducted in Connecticut will give as good results as can be desired. If this is an accepted fact, what must it mean to the thousands of worthy cases that can meet the cost of home treatment, but for whom remote resorts are impossible?

The two facts that I have tried to establish, the curability of tuberculosis, and the possibility of cure in a home climate, have taken possession of the public mind, and patients are prone to think that they can take care of themselves. This is an unfortunate error. The apparent simplicity of the treatment is deceptive. The best cure should be under the direction of a physician, and in all cases where home surroundings interfere, the patient should be treated in a sanatorium.

Believing in the truth of the facts that I have briefly stated, the Directors of the New Haven County Anti-Tuberculosis Association undertook the construction of what is now known as the Gaylord Farm Sanatorium. To very many the facts connected with the building of our Sanatorium are well known. It will be sufficient to say that the institution was completed and opened for patients on September 20th, 1904. The Sanatorium as it stands represents the outlay of one hundred thousand dollars. Of this sum one-fourth was contributed by the

State, and seventy-five thousand dollars were donated by the citizens of New Haven County. I know of no more striking evidence of the interest of the general public in the crusade against tuberculosis.

Our Sanatorium has been so constructed as to provide a separate bed-room for every patient. It is undoubtedly true that by the ward system we could have provided for a much larger number of patients at the same cost, but our Association has been from the first heartily in favor of the cottage system. If any permanent benefit is to be derived from the treatment, a residence in the institution, of six months or longer, may be required. Under such conditions the benefit to be derived from a certain degree of privacy is apparent. As much of the success of treatment depends upon the willingness of the patient to remain in the institution, a large sum of money was expended in providing suitable entertainment halls, libraries, and an attractive dining-room. All these buildings have been completed, and no further outlay in that direction will be called for for years to come. We hope during the summer to build a permanent barrack building for the accommodation of "out of door" sleepers. This brief sketch of our institution must suffice. It stands upon the highest point of land in Wallingford, with an extended view of the surrounding country. It is in the center of a farm of two hundred and thirty acres and is remote from any possible annoyance.

The purpose of our institution is the treatment of curable cases of tuberculosis. It is in no sense of the word a Consumptive Home. The sanatorium and the home idea cannot be successfully operated within the same institution. Wherever any such combination has been attempted it has not been found practicable. The advanced cases remain willingly as there is little else for them to do, but the curable cases become restless and will not remain under treatment. Since the opening of our institution last September the number of applications for admission has been very large, but we have only

been able to accept for treatment forty-six patients. The rejection of applications is a most painful duty, and the medical board has made every possible effort towards a liberal interpretation of the rules of admission. It must be admitted, however, that patients who are too ill to leave their beds, and those who have, with the most painful efforts, dragged themselves to the examiner's office to have him find every indication of death within a very short time, cannot be admitted to any institution if the institution has any prospect of success as a sanatorium or curative institution. I cannot refrain from mentioning the fact that a large number of these applicants come for examination wholly ignorant of their true condition. Their refusal as patients they fully understand, but the fact of their condition comes as a shock. Is it not mistaken kindness to withhold the truth? By so doing is the patient not robbed of his only chance of life? Our recent conception of tuberculosis makes the deception of the patient after the diagnosis has been established nothing less than criminal.

Early diagnosis is the first essential to successful treatment. If the patient is to be submitted for sanatorium treatment, his physician should explain his condition to him and explain to him the direct economic advantage of immediate treatment. The reluctance upon the part of the patient to accept the truth keeps his physician at a great disadvantage, but in the majority of cases the physician's advice is accepted and acted upon. The Gayford Farm Association examining board have made all examinations gratuitously, their only interest being to secure suitable cases for treatment. Where applicants have resided at an inconvenient distance the Chairman of the Medical Board has requested some local physician to act for the Association. After the admission of patients to our Sanatorium all professional relations between the members of the Medical Board and the patients cease, and Dr. D. R. Lyman assumes control. The modesty of this gentleman makes me hesitate to do

more than mention his name. I must, however, assure the members of this Society that in placing their patients under Dr. Lyman's care they are entrusting them to one who has every professional and personal qualification to entitle him to their full confidence.

The name of our Association has led to some confusion, and there seems to be a general opinion that we are for New Haven County exclusively. This is an error. The State, as I have already said, gave us \$25,000 toward equipment, and recently the Legislature has voted \$5,000 a year for the next two years to help us meet our deficiency. This liberal support by the State opens our doors to applicants from all parts of the State. We gladly extend our welcome, and earnestly desire the co-operation of all the members of this Society.

PROPHYLAXIS IN TUBERCULOSIS.

CHARLES D. ALTON, M.D.,

BARTON.

In tuberculosis we have a disease wherein the phenomena recognizable as contributing causes, and as well the means essential to cure, are all indicative of the principles of prophylaxis.

In no other disease or group of morbid manifestations grouped under one head do the historical features contributing to or resulting in the climax so plainly show what should have been avoided and what habit of life should have been followed. It is retrospective knowledge we admit, but the lesson lies for the benefit of another valued life, and whether it be the infant with tuberculous inheritance, the anemic youth with stolid habits and fickle appetite or the adult inmate of an infected house, the study of the historic phases in each teaches the prevention for another set of similar cases.

In order to approach the subject in some simple arrangement we may regard it first, in a sense, subjectively, as from the standpoint of the individual and his inherent tendencies and characteristics and, secondly, in an objective manner as pertaining to his environment.

In considering subjective impressions we observe that different individuals are not similarly influenced by the same objective fact, that which stimulates one to excitement finds another impassive. The principle, as expressed, finds a simile in the action of the tubercle bacillus on the human family. Every microorganism requires the proper soil for its propagation but where the soil is found it makes its home. The first duty of the physician, whether for prevention or cure, is to correct the soil whether it be inherent or acquired. The infant who has

inherited actual taint, or comes into the world with impoverished tissues, must be counted as potentially tubercular and the youth, whether boy or girl, who by habit and neglect develops defective physical resistance is handicapped in the fight with the tubercle bacillus.

Pre-natal Suggestions:—In this connection the consideration of marriage and childbirth are of signal importance and call for sober reflection. The conclusion adduced from Dr. Knopf's recent remarks is of one iron law in the negative as to the marriage of tuberculous persons, but there are certain conditions under which the physician may give permissive advice but always with the utmost caution and confiding to some member of the family the added risks. Dr. Knopf would not positively prohibit pregnancy if the disease has been arrested for two consecutive years, nor would he prohibit marriage under the same condition of recovery.

It seems most unwise to allow childbearing if either parent have an active tuberculosis and yet we are daily seeing exceptions to the rule, and children not only appear free from tuberculous taint but have reached adult or advanced life. Here again applies the law of subjective tendencies.

There come to my mind two beautiful children crippled with tuberculous joints, the mother of fine health and physique, the father a chronic pulmonary case of ten years standing, persistent but of slow course, enabling him to continue his usual vocation. I mention this case as one measurably favorable to the children, yet resulting in a most unhappy condition. We are often puzzled in deciding whether to interfere in the early pregnancy of a tuberculous mother. Pregnancy should not have happened, but the many cases where healthy children have been born to tuberculous mothers cause hesitation to interfere unless special conditions warrant it, and our duty is clear to inform the husband that should his wife become pregnant before her disease is arrested, there is grave danger to both mother and child. If pregnancy

have occurred it behooves us to give the mother the best climatic, hygienic and dietetic care possible, and especially to insure her going to full term in view of the data from several European hospital authorities showing a rapid decline after short-term pregnancies.

A child born of tuberculous parents is handicapped. Not that he is of necessity positively tuberculinized but he is of a class having an added chance against his longevity and he consequently demands special care from both his physician and his parents guided by his physician. It has frequently been shown that these children do not pass through the diseases of infancy as simply and easily as otherwise healthy children, for although the bacillus may not have been transmitted the child has an acquired tendency to faulty nutrition and deficient physical resistance; especially is this the case if several members of the family have been tuberculous.

The Care of the Infant:—This infant should not be nursed, or kissed on the mouth by his infected mother, resort must be had to the wet-nurse or artificial feeding and here is presented an added depressant sufficiently debilitating without heredity. The mother is barred from her usual motherly duties—how often we see the mother taking the food from the child's spoon or drawing on the rubber nipple. The child should be moved to a large airy room, the more nearly like a hospital ward the better, his milk should be above suspicion, his food carefully selected, his clothing sufficiently warm, his baths gradually cooled until he enjoys a cold sponging and cold sponging should be his life habit. He should have abundance of sunlight and fresh air and change of residence if he show debility. Let him forsake conventional life and revert to nature. Life insurance statistics have shown an increased mortality and morbidity between the ages of fifteen and thirty in cases where the mother of the insured was tubercular.

Youth With Acquired Tendencies:—In the second class of those who may be considered subjectively, are the

youth who, without physical bias at birth, acquire by habit or neglect defective physical resistance. To illustrate this class I may allude to a case I was asked to see recently as representing a type and at the same time a text for comment. A young woman of healthy Irish parentage and without tuberculous history, twenty years of age, of medium height, weighing sixty-four pounds, anemic, light frame, spare of flesh, undeveloped mammary glands, flat chest, always a poor eater, "sat in the corner and read while other children played out of doors," studious at school, went to the convent and had just begun to teach. The history of her illness began with "catching cold" three months previously, continuous cough, expectoration and high temperature; I diagnosed a rapidly progressive acute tuberculosis of the bronchopneumonic type. I saw her in March and could only advise removal from the little bedroom, where the one window remained closed, to an upper corner, sunny room with windows wide open, absolute rest, every attention to diet, and only such medication as her distressing symptoms demanded. In view of her parental condition the history of her life habits are quite sufficient to indicate the cause and, in the same moment, the prophylaxis.

In our schools and the schools about us, in the treatment houses among the poorly nourished are candidates just entering this class and to the beginners only can we apply any rules of prevention. They are discoverable by the same marks that characterize this young woman, and we must learn to detect this truly pre-tubercular state at eight and ten years of age, and especially at puberty if we would hinder these early entrants upon the class which at eighteen begins to swell the army of the "great white plague."

Prophylaxis as applied to these unfortunates lies primarily in the educated awareness of the family physician, next in the educated sense of the parents to understand the value of air and sun and food, more play and less study, and thirdly, in a philanthropy that shall turn

these children loose like young animals at pasture that their does may be educated, taking the chances with the brains.

Finally we come to the objective view of the question, the consideration of that which is prone to influence for ill, not only the two classes to which we have referred but the public at large. What measure shall we take to inhibit the power of the bacillus tuberculosis and minimize its victims? Primarily keep the individual bacillus-proof, build up your patients when they are run down, correct their social and business habits if they are debilitated, bear in mind the danger of mixed infections from influenza and other respiratory maladies.

We recognize two chief channels of infection, the respiratory and digestive inlets. It is claimed that a normal nasal mucous membrane is practically proof against micro-organisms, but mouth-breathers present at once two non-obstructive channels of infection by reason of abnormal nasal, pharyngeal and buccal secretions.

If the gastric juice, believed to be normally antiseptic, be deficient or defective, there is ineffectual opposition to infection by the bacillus tuberculosis if introduced by food. In fact any lowered vitality of tissues or organs, whether from disease, habits, mode of living, trade or calling, must be corrected to safely resist infection.

Whether your patient is in a tenement house or a palace your treatment will be upon the same general principles, and while your first care will be for your patient you cannot, if you are humanitarian as well as doctor, be unmindful of the household.

It comes almost a parody on the science of medicine that our latest conclusion relative to this disease leads us largely to ignore therapeutics and that which we may regard as strictly medical, and trust almost entirely in both cure and prevention to its adjuncts, hygiene, sanitation and dietetics, in fact retrogressing from our gilded conventionalism to the practical common-sense of the human family's infancy as crystallized in the Mosaic law,

You have a patient in a tenement house, where formerly in large cities the recoveries were only two per cent. When you substitute a cheese-cloth screen for his glass window you are thinking quite as much to remove his harmful respiration from the family as to give him more air. You supply him with a "spit cup" or paper napkins that his expectoration may not harm others. When regulating his diet you do not forget nourishing food for the wife and children, some of whom are perhaps already infected, you see that his sheets are disinfected and that a band of gauze protects the blanket's edge but not for his sake. In all of this you are only following the simple methods used at all sanitariums to day. If you can educate your patient to the exercise of proper care the danger or infection to other members of the family is reduced to the minimum. But supposing these methods are impossible, and they often are, the state owes it to the lives of the others to care for the invalid. We may have to wait on the wisdom of the state for some years but it will come eventually.

Giving thought then to the removal of the cause of infection and the physical betterment of the individual liable to become infected, we have grasped the two chief elements in prophylaxis as they fall to the special observation of the practitioner.

Considering prophylaxis for the general public we must turn attention to pure air and freedom from microbic dust in factories, general hospitals, tenement houses, and all aggregations of people. To insure this there must be state or municipal supervision, even to combating personal privilege, for in this the state has to consider not only the afflicted, who may claim personal liberty, but the people at large upon whose well being the happiness and welfare of the state depends. Recent experiments have improved the health of factory hands by isolating the invalids and instructing them in hygiene, and by disinfecting the dust before sweeping. These

are but suggestions of what may be accomplished with the public generally in stamping out this costly and noxious disease. Nor are these means enough if we would seek the happy state anticipated by Prussia and England where it is hoped, under the prosecution of present recognized methods, to stamp out consumption in from twenty-five to fifty years, for to the accomplishment of this end a further duty falls to the State in the asylum or hospital care of those advanced even beyond the hope of cure, just as we care for those afflicted with nervous maladies, not only by reason of sympathy for the unproductive life, but more especially to remove a menace to the health of the multitude.

We already have knowledge of the situation and of the means leading to its correction. We lack only a liberal, generous and especially a concerted action by which the danger from consumption fifty years hence shall be no greater than that from small pox to-day.

CONCERNING SOME OF THE NEWER NON-SURGICAL FORMS OF TREATMENT OF ABNORMAL CONDITIONS OF THE FEMALE PELVIC ORGANS.

KATE C. MEAD, M.D.,

MILWAUKEE.

Much may be done in the way of preventing abnormal conditions of the female pelvic organs by attending to the school hygiene of growing girls. It has been said that this is an age of pie, pickles, "fudges," and clashing indigestibles. It is also an age of insufficient winter clothing, of high-heeled shoes, of abdominal constrictors named "straight front corsets," and, unfortunately, of night long dancing parties. This combination results promptly in intestinal fermentation, and constipation, followed by viceroptosis of some or all the abdominal and pelvic organs and of diminished vitality and neurasthenia.¹ President Stanley Hall says:

"Specialists are beginning to realize that they must broaden their views from the pathology of a woman's organs, till lately so often doomed if once she consulted them, to the entire problem of regimen, and know at least as much about woman as about her organs."²

"It cannot be doubted that the annual increase in strength of girls from fourteen to nineteen is exceedingly small, and out of all proportion to that of boys of the same age. I have no doubt that the average woman from nineteen to twenty-one years of age has much less strength in proportion to her weight than the average girl of twelve to fourteen."³ Few women of twenty-one years of age, outside of professionally athletic college women, can play a good game of tennis, row, or

walk ten miles. They have increased in height, breadth and weight without muscular increase.

Some accidental trifle calls upon a woman for a little more than her ordinary work, and she pays for it by a congestion of some organ of the body, or a sprain of some ligament or tendon. Time spent in muscular training is not lost time. Flabby muscles are anemic, and this anemia implies congestion of the viscera. The idle muscle contains not more than one-fourth or one-sixth as much blood as the active muscle. Wherever there is a congested area there is a good culture-field for bacteria, and if the pelvic organs are engorged with blood they may be infected by the colon bacilli from an over-distended bowel, or made the seat of any other auto-intoxication. The pain or discomfort of uterine disorders produces mental weariness, which easily becomes neurasthenia, with its long chain of sequelae.

The routine of housework, and the slow or jerky movements connected with the care of children are not enough to keep a woman's muscles in tone. She needs active out-of-door exercises of a pleasurable sort to keep the proper amount of blood in her muscles and to keep debris from clogging her brain.

McCallum says that over ninety per cent. of cases of neurasthenia in the female depend upon visceroptosis, owing to bad fitting and heavy garments, imperfect use of the lower thorax, presence of fat, and want of tone in the abdominal muscles. Prolapse of the uterus may be only one feature of a possibly general visceroptosis, causing all kinds of pain and discomfort. Many non-medical means are necessary to cure visceroptosis: abdominal supportors, massage, gymnastics, cold baths, sleep in correct positions, increase of tone in the rectal muscles, etc.¹

Operations are spectacular, and often necessary, but early and judicious gynecological treatment by other means will often prevent an operation.

Air and water, light and heat, motion and electricity,

are six powerful restorative agents which are practically within reach of all. By motion alone the Osteopaths procure many cures and obtain no little fame, but it may be questioned whether it is altogether to the credit of the medical profession to ignore the study of Swedish movement and massage, which is much more scientific than Osteopathy, and gives better results.

Unfortunately, we have few institutes which make use of all these six agents developed to their greatest therapeutic value. In Rome there is one such institute which I had the pleasure of seeing last spring, called "The General Institute of Physical Therapeutics." In its first year there were treated ninety-six cases of diseases of the female pelvic organs, of which sixty-one were cured or much improved. The treatment consisted chiefly in massage, electricity, and baths, given several times a week for six to eight weeks; and the proportion of cures would have been larger had some of these chronic invalids not become discouraged in the early part of the treatment by an inevitable recrudescence of the disease.

For chronic inflammatory conditions, such as metritis, endometritis, peri- and parametritic exudates, oophoritis, etc., a "water cure" is often very beneficial; draughts, for example, of sodium chloride and sodium sulphate waters. These purgative waters cause a lowering of the hypostatic pressure in the abdominal blood-vessels, overcome the hyperemia of the uterus and its adnexa, and so stimulate the absorption of exudates. (Cohen). Such natural waters as Rose of Utah Orchard and Saratoga Springs are of benefit in some cases, or in debilitated patients the milder waters such as Vichy or the Waukesha Spring water of Wisconsin.

A "drinking cure" may be combined with a "bathing cure," such as the mud or peat baths, hot brine baths, iodine brine baths, or the Fungo baths lately introduced into New York from Italy.

The iron-peat baths are especially valuable for absorbing exudates, on account of their powerful cutaneous

irritation. This is due both to the mechanical friction and weight of the mud, and to the greater degree of heat which can in this way be borne by the patient. Contraindications for this kind of bath are organic disease of the heart, arterio-sclerosis, or pulmonary tuberculosis.

Hot sea-baths and the iron-peat baths of Marienbad, etc., are of value in relieving the secondary manifestations of myomata of the uterus and of incipient ovarian tumors. Local carbonic gas-douches are useful in treating amenorrhea and dysmenorrhea.

Fango,^{*} a kind of volcanic mud found in Italy, makes a good hot bath for treating pelvic and uterine inflammation. It acts like a gigantic poultice, withdrawing blood from congested areas to the surface of the body, and stimulating removal of inflammatory products, especially in recent cases. The mud is applied hot, about 112° F., and the patient remains in the "pack" for twenty to forty minutes and then goes into a water-bath to be rubbed. Fifteen to twenty-one treatments are said to be required for individual cases. There is now a Fango Institute in New York City.

The pain of sub-acute para- or peri-metritis is quickly relieved by dry hot air over the abdomen. Any apparatus which will generate a heat of 300°, or more, may be used; or an apparatus consisting of four electric light bulbs under an arched abdominal covering. If chloride of calcium is placed inside this cover to absorb some of the perspiration, a much greater degree of heat may be borne. The effect of this dry-heat, or light and heat together, if used for thirty minutes once or twice a day, is very good in hastening resolution, or in softening tissues before making a vaginal incision through which to evacuate pus from an infected Fallopian tube.

Take a case of sub-acute gonorrhœal parametritis, which Schauta calls "Cementitis," owing to the firmness of its exudate, treat it for a week with hot air and hot vaginal douches, then replace the uterus gradually by Brandt's massage method, and the patient's symptoms

should be entirely relieved, although the gonorrhoea may not be cured.

Moist heat to the abdomen is often comforting to the patient, and readily applied. Pads of wadding, which may be soaked in any hot solution and covered with oil of silk, are most suitable for this treatment. This combination can be bought at the drug stores under the name of "Emolasm" and it is fully as efficient as anti-phlogistin and cleaner than this much advertised pad.

At Schauta's clinic, in Vienna, I found Schauta and his assistant very conservative as to operations. Uterine massage and local applications of absorbents or antiseptics are given a thorough trial or consideration before resorting to surgery. For obvious reasons tumors, cysts and cancers must be removed, and by the vaginal route if possible; curettage is done for retained placentae, abscesses are evacuated and drained, and in many cases retroverted uteri are suspended or fixed to the wall of the abdomen or anterior wall of the vagina. But for a case of hemorrhage from a simple endometritis, for example, instead of immediate curettage, they give rectal enemata of ergotin with glycerine, viz.: Ergotin 10.00 grammes; glycerine 20.00 grammes; Aq. Dest. 70.00 grammes; Ac. Salicyl. 20 (as preservative). This preparation is to be used by rectal catheter, 50 grammes at a time, once or more a day for a week if needed before resorting to the curette.

Stypticin or styptol, three to six grains in twenty-four hours, or fl. ext. hydrastis can. 75 gtt. per diem., are administered by mouth in some cases, and the case carefully watched.

Given a case of endometritis or of chronic metritis in a multipara, (and few multiparae have not a chronic metritis), where is a steady ache in the sacrum as a subjective symptom, and an enlarged retroposed uterus, with hard, open cervix and no history of unusual bleeding or fever, it is found beneficial to give these rectal enemata

of glycerine-ergotin solution and vaginal tampons of ichtholine or other solutions of ichthyol and iodine, and to scarify the cervix as often as is necessary to deplete it freely.

If an acute para- or peri-metritis can be seen sufficiently early, the inflammation may be aborted by the use of a Leiter coil of ice water to the abdomen. This is often useful during the puerperium, and at the same time cold wet gauze may be kept in the vagina, constantly renewed.

Chronic Salpingitis, with retroversion of the uterus, is amenable to treatment by Brandt massage. This treatment can be used so long as it causes no pain; from eight to sixteen treatments may be needed to cure an ordinary chronic salpingitis plus exudates connected with a retroverted uterus. The technique of the Brandt Massage¹ can not be taught by books. It is demonstrated in some of the larger medical clinics abroad and has many adherents in this country. It consists of a form of spiral strokings on the body of the uterus, pressure against the adhesions to cause absorption of exudates, external massage of the fundus uteri through the abdominal wall, backward stroking on the cervix after the fundus has been placed well forward, and finally sacral percussion or vibration to cause contraction of the blood-vessels in the pelvis. The internal massage is given by two fingers in the vagina.

After the treatment by Brandt's Massage the patient is given passive exercise with "knee-resisting" movements, to increase the tone of the muscles in the pelvic floor and the levator ani. Following all this the patient must rest for half an hour in the abdominal decubitus.

Vibratory massage on the sacrum and over the ovaries is of great value in lessening neuralgic pains and aches in the pelvis. This treatment may be given in several ways; either by expensive vibratory machines run by a city motor or steam, or by small hand machines run by

a few battery cells. This form of treatment gives very appreciable results in office practice.

Vibratory massage stimulates the nerves by causing them to vibrate more or less forcibly. With light vibration the blood supply of a part is increased. With deep vibration and pressure a painful neuralgia may be stopped. The vibration stimulates secretion and excretion; it softens and relieves muscular spasm and congestion, empties lymphatics, and lessens venous stasis. Used between the spinal vertebrae it controls the spinal nerve centers and does more good than any form of electricity or rest cure.¹ (Schaufler.)

Massage by machinery is sometimes more beneficial than by hand. Dr. Zander's mechanio-therapeutic appliances can be used for all parts of the body with a precision not possible to a human being. At the Zander Institutes prostaticitis, prolapsus uteri, hemorrhoids and constipation are treated very successfully. This treatment should be combined with home exercises, such as walking around a room on "all fours," derivative leg exercises, knee-chest position frequently, and other good postures, in order that the patient may do much to hasten her own recovery.

The stretching of old adhesions may be aided by the use of a Colpeurynter bag filled with mercury. This treatment should be given every day, for half an hour at a time. The patient lies with hips elevated, the physician places the colpeurynter empty in the vagina, and fills it with about 1 k.g. of mercury which is to exert the pressure on the exudate behind the uterus. In due time the mercury is siphoned off, the bag removed and a douche given followed by a Brandt treatment. After this the patient should rest for one hour, preferably in a sun-bath.

Uncomplicated retrodeviations of the uterus may be treated by tampons and pessaries in order to prevent the replaced uterus from sliding back into its former bad

position. The Hodge pessary, for example, shortens the sacro-uterine ligaments, making tension in the posterior fornix, and may be used during the intervals between the Brandt massage treatments.

The Schultz pessary is of great value in supporting a prolapsed uterus with rectocele and cystocele, where operation is inadvisable. It is the only pessary which is not forced out of the loose vagina when the bowels move, and it can be depended upon to remain in place when every other pessary fails. The Schultz pessary is saucer-shaped and perforated and is easily removed by the patient for cleansing, and as easily replaced.

For the more complicated cases of uterine displacements operations must be employed. Hayd¹ advises the Alexander method; Schauta, vaginal fixation; others, abdominal or peritoneal suspension. For cases where there is a koina the "Alexander-Adams" operation is a good one. But however much the round ligaments may be shortened, they are not strong enough to support a heavy uterus plus the superimposed weight of torpid bowels and full bladder; and it seems useless to subject women to this operation.

If women walked "on all fours," the round ligament would be quite equal to the work of holding the uterus in anteversion. In the erect position, if the great broad ligaments and the sacro-lilac ligaments are contracted by injury, or held as in a vice by a mass of exudate and adhesions, they then become the evil forces which perpetuate retrodeviations of the uterus or ovaries.

Any mal-position of the uterus interferes with its circulation and arrests involution after labor, or causes an hypertrophy or chronic congestion. Chronic inflammations follow with severe hemorrhages, or profuse leucorrhœa, and the patient seeks the gynecologist and begins treatment. Perhaps the first thing to be done in this case is to use heat in various ways to lessen the congestion, then to replace the uterus in a correct position, and

then to apply caustics or electricity to the endometrium.

Electricity is often of great value in controlling uterine hemorrhage due to fibroids. Barton Cooke Hirst¹¹ uses the positive pole with constant current in the uterus, of a strength of 50 m. a. Witte¹² uses a Faradic current for arresting the hemorrhage of uterine myomata, one pole in the uterus and one on the abdomen, for twenty minutes each day. W. H. White¹³ of Boston, has reported a case of chronic metritis and of ovariitis cured by high-frequency currents. For this case he used at first a copper-tipped intra-uterine positive pole, and a larger electrode on the abdomen with the continuous current of 25 volts and 25 to 30 m. a. This was given five or six times, for five minutes each time, but was only fairly satisfactory in controlling the pain and hemorrhage. He then began with the high-frequency current, using a special vaginal vacuum tube, and a flat disk tube over the ovarian region, running the current for five to eight minutes, twice a week. The patient received thirteen treatments in all, and her flowing and pain stopped completely.

Furthermore, electricity in the form of the continuous current is said to be of more value in dissipating inflammatory exudates than any other treatment. Cleaves¹⁴ suggests that the electrode contacts must be carefully adjusted so as to operate upon or within the mass, and the cervical bands softened by massage or by the alternating current.

It was once claimed that uterine fibroids could be shrunken by galvanism. That this was too optimistic time has shown, but the patient's symptoms were ameliorated and her general health improved so that a subsequent operation was perhaps more successful.

It should not be overlooked in this connection that uterine tumors as well as ovarium, although starting apparently as benign growths, often become malignant later. Barton-Cooke-Hirst's figures are significant. Out of one hundred and eighty-nine fibroid tumors operated

on be found eight per cent. complicated. Three were circumscript, five cystic, four necrotic, two myomatous, one calcareous; and in fifty per cent. of all the cases there was disease of the ovaries as well as of the uterus.

Eisen rays and X rays have undoubted value in the treatment of hypertrophied uteri as well as of cancers. Tossy¹⁸ says, "I can not too strongly recommend the adoption of this treatment at any stage before the recurrent cancer has too far sapped the patient's vitality." He uses the rays through the uncovered abdominal wall, and through a Soft's speculum in the vagina, each treatment lasting four to ten minutes.

Lomer¹⁹, in an article on the curability of cancer, reminds his readers of the readiness with which cancer cells are influenced by hemorrhages, lacerations, fevers, erysipelas, etc., and suggests the more frequent use of the actual cautery or electric snare.

Of not less importance than the treatment of malignant diseases of the uterus and its adnexa, is the question as to the treatment of lacerations of the cervix. Do these lacerations lead to cancer if left unrepaired, and if repaired when should the operation be done? Most obstetricians repair a perineum immediately after delivery, but as to the cervix there is a difference of opinion. Ruddy²⁰ protests against immediate operation on the cervix, and does not believe that lacerations ever lead to cancer. He agrees with Knapp that erosions must be healed, but they both believe that the symptoms are local and not reflex.

Dr. Robert E. Dickenson²¹ has drawn attention to the alterations produced by granulation and contraction in unsutured lacerations of the cervix uteri, and to the scarred, swollen, everted, and cystic lip which give uncertain indications for accurate reversion to a normal condition. He advocates mending the severe cervical and perineal tears within the first week after confinement, say from the third to the fourth day, or as soon as the swelling has disappeared sufficient-

ly to allow accurate adjustment of the parts. His practice is to suture cervical injuries at the close of labor only when they seem to be the cause of post-partum hemorrhage.

Schauta treats erosions of the cervix with applications of stick silver nitrate, once in four days. The cervix is then enveloped in cotton on which is a powder consisting of equal parts of dermatol and tannin. And, if there is any unusual tenderness of the uterus or adnexa, he packs into the vagina, ichthylol and glycerine.

For intra-uterine treatment, in cases of fungus endometritis, the following solutions are used in Schauta's clinic: Formalin, 25 to 50 per cent., once in five or six days; Chloride of zinc, 50 per cent., every ten days; Tr. Iodine every second day; silver nitrate, 10 to 20 per cent., every third or fourth day. These applications should not be made before swabbing the vagina and cervix with an alkaline solution. The chloride of zinc preparation causes so much pain that it should not be used except as a last resort. In all cases these cauterizations should be followed by a tampon of dermatol and tannin, and the patient kept in bed for some hours.

A valuable agent for the relief of the pain in salpingitis and all acute inflammations in the pelvis is a tampon soaked in a 10 per cent. solution of chloral hydrate in glycerine, to which may be added one-half of one per cent. of cocaine.

Many of these cases of inflammatory conditions of the pelvic organisms in women are due to infection during the puerperium, from auto-intoxication, or from carelessness in observing the rules of antisepsis. And many are due to gonorrheal infection. The latter disease spreads from the vagina to the cervix and lymphatics causing a cellulitis or parametritis and later involves the tubes. This gonorrheal infection must be energetically treated, although it is perhaps never cured.

For a recent gonorrhea Cotton¹⁵ suggests that the vagina should be irrigated with a solution of potassium

permanganate, 1:6000, followed by a five per cent. protargol application twice a day for three days, then once a day for ten days. After this period the patient should use at home vaginal suppositories containing ichthyol as well as antiseptic douches. Pond's medicated wool tampons are of service where the patient can not be treated as frequently by the physician as is necessary; but protargol solutions or some of the salts of silver should be continued by the physician at intervals for many months.

The non-surgical treatment of some of the abnormal conditions in the female pelvis demands most careful diagnosis. Critical differentiation must be made between para and peri-metritis, chronic salpingitis and pus tubes, tubular pregnancy and tumors, ovarian cysts and multiple fibroids of the uterus, fungus endometritis and cancerous growth, simple erosions of the cervix and epithelioma, etc. The use of the microscope is a *sine qua non* to determine the histology and bacteriology of a puzzling case. Often it is necessary to examine scrapings, make a blood count, and stain a mucopurulent discharge before one is sure of the diagnosis and ready to begin any treatment whether surgical or non-surgical.

REFERENCES.

1. J. H. Kellogg, *Archives of Phys. Therapy*, Feb., 1901.
2. Stanley Hall, *Johns Hopkins Bul.*, April, 1895.
3. Carolyn Lock, *Proceedings Amer. Ass'n. W. M. C. of Pa.*, 1899.
4. H. A. McCullum, *Brit. Med. Jour.*, Feb., 1902.
5. Cohen, *System of Phys. Ther.*, Vol. IX.
6. Fungus Treatment, *N. Y. Med. Jour.*, March, 1903.
7. Kate C. Mead, *Journ. of Obstet.*, 1900-1906.
8. Schaeffer, *Journ. of Med. Res. of New Jersey*, Jan., 1904.
9. Hayd, *International Journ. of Surgery*, Mar., 1900.
10. Tenney, *N. Y. Med. Jour.*, and *Phila. Med. Jour.*, Mar., 1900.
11. Barton Cooke Hirst, *N. Y. Med. Jour.*, and *Phila. Med. Jour.*, March, 1901.
12. E. Witte, *Deutsch. Medicinische Wochenschrift*, Nov., 1894.
13. Margaret Clavess, *Med. News*, April, 1905.
14. R. Löwen, *Zeitschrift für Geburtshilfe, und Gynäkologie*, Bd. 58, II 2.
15. P. J. Condon, *Boston Med. and Surg. Jour.*, Feb., 1905.
16. Eddy, *Am. Med.*, July, 1894.
17. Robert L. Dickenson, *N. Y. Med. Jour.*, and *Phila. Med. Jour.*, March, 1904.
18. Walter B. White, *Archives of Phys. Therapy*, Feb., 1905.

THE BOSSI DILATOR FOR RAPID DILATATION OF THE CERVIX.

OTTO G. RAMSAY, M.D.,

NEW HAVEN

Any method by which our work may be more safely or more easily done should be welcomed, and it is my intention to report briefly to-day on a method of dilating the pregnant cervix instrumentally which is as yet probably unknown to some of the practitioners of medicine in this country, but on the merits of which most of the users of the instrument agree. There have been many attempts made during the past half century to devise a metallic instrument by which the cervix of the parturient woman might be safely dilated, but it was not until Bossi, an Italian obstetrician described his instrument some four or five years ago that anything near the desideratum was reached. The Bossi dilator which I show you here, is an instrument with four arms, capped by protectors, and separated by a powerful screw, the amount of separation of the arms being shown by a small dial moving opposite a scale. With this instrument under certain conditions the cervix may be readily and safely dilated to a diameter of from 10 1/2 to 11 cm. in from twenty to thirty-five minutes with much greater ease and surely than with the fingers.

I have had the opportunity of using or seeing the Bossi used in seven cases during the past two years, and I should like first to read a brief account of the individual cases before attempting any conclusions.

Case 1—Mrs. P., aged twenty-six—Primipara nearly at term. Seen May 10, 1903, in consultation with Dr. Good-year of North Haven and Dr. Joslin of Mt. Carmel.

During the preceding six hours she had had eight convulsions and had another during the examination. Chloro-

form was given and the cervix was found hard and tense the canal still present and not admitting tip of finger. The Bossi raps were removed and the dilator introduced. The dilatation was too rapid, and when a circumference of four cm. was reached, there was a deep tear found in the left side of the cervix—for this reason the dilator was removed and the remainder of the dilatation was carried out with the fingers. A version was then done and a living child delivered. The deep tear in the left side of the cervix required several sutures to control bleeding. Mother and child living.

Case 2—Mrs. G., aged thirty-eight—Mother of several children. Seen in consultation with Dr. McDermott of New Haven. Patient had had five to six convulsions when seen. On examination the cervix was found flattened out and admitting tip of index finger. She was immediately sent to the hospital, chloroformed, and the cervix dilated in twenty-five minutes to a diameter of 10 1/2 cm. No fetal heart-sounds had been heard for some time. Axis traction forceps applied and a dead child easily delivered. Mother left hospital well, cervix not torn.

Case 3—Mrs. M., aged twenty-six—Primipara of seven months. Seen in consultation with Dr. Marsh of Westville. Had had six to eight convulsions during day. Sent immediately to the hospital, and under chloroform anesthesia the cervix dilated in twenty-five minutes with Bossi dilator and a living premature child delivered with forceps. Child died in four hours. Mother had no more convulsions, but the coma steadily deepened, and she died in six hours. No marked tear of cervix.

Case 4—Mrs. N., aged twenty-four—11 para. Patient sent into the hospital March 13th, 1905, in the eighth month of pregnancy by Dr. Klenke. Had had several convulsions before entering hospital, and four at short intervals after her admission.

Ether was given, and the cervix was found flattened the os admitting finger easily. It was dilated to 10 1/2

cm. in thirty minutes, breech presenting, leg brought down and a living premature child delivered. No perineal or cervical tear. Child which was very small and about two months premature lived four days. Mother left hospital well. No marked cervical tear.

Case 5—Mrs. Z., aged twenty-six, II para. Patient was sent into the hospital in the eighth month of pregnancy suffering from valvular heart-disease with failing compensation, much albumen in the urine, and marked symptoms of toxemia. The cervix was flattened out and admitted the finger easily. Ether anesthesia was given, and the Boosi dilator was used by my assistant, Dr. Hunt. The cervix was fully dilated in thirty minutes, and an internal podalic version performed, delivering a premature child. After the delivery the patient did well, leaving the hospital in good condition. The cervix showed only a very slight tear.

Case 6—Mrs. F., primipara, aged nineteen. Patient seen March 19th, 1905, in consultation with Dr. Kowalewski of West Haven. She was in the ninth month of her pregnancy and had noticed for some days swelling of the ankles, and puffiness of the face. At 6 p. m. she had her first convulsion and following this were five more, before I saw her at eight-thirty the same evening. Her cervix was flattened and admitted a finger easily. Chloroform anesthesia was given, the Boosi dilator introduced and the cervix dilated to 11 cm. in between twenty-five and thirty minutes. As the head was low down and in an anterior position, forceps were applied, and a living child delivered. Dr. Kowalewski reported three weeks later that the mother and child were doing well. No cervical tear.

Case 7—Mrs. S., aged twenty-five, III para. The patient was admitted to the hospital April 25th, 1905, in the ninth month of pregnancy. She had noticed some edema for several weeks, and had had four convulsions before entering the hospital. The cervix was flattened

out and admitted the finger easily. The Bossi dilator was introduced and the cervix dilated to 10-12 cm. in twenty-five minutes. Child delivered by an internal pedalic version, somewhat asphyxiated, but soon revived. There was quite a deep tear in the left side of the cervix, requiring one suture at the angle to control bleeding. Mother and child left hospital well. There was a scar in the left side of the cervix extending to the vagina.

These seven cases have been instructive, and though they are few they are sufficient to prove to me the value of the instrument, and to draw simple conclusions from. They have demonstrated most clearly the difference between the two clinical types of cases which we are called upon to meet, namely those in which the cervical canal is not obliterated and those in which the cervix is flattened out, the internal os gone, and the external os admitting one or more fingers. I have had the good fortune to see but one of the first type among the seven cases reported, and in that I was unable to complete the dilatation of the cervix with the instrument because of the tearing, and had to stretch it further with the fingers. It was my first case, however, and I am sure the dilatation was attempted too rapidly. If, however, I should see another such case, I should use one of the rubber-rod dilators, at least, until the internal os was obliterated, as the Bossi will not dilate the whole canal satisfactorily.

The introduction of the instrument is simple. I have found it easiest to grasp the anterior lip of the cervix with a tenaculum before attempting the passage of the instrument, as it helps to steady the whole cervix. Before beginning to dilate, the cupped arms should be carefully placed so that the overhanging tips do not impinge on the cervix, but lie within the cavity, and as the dilatation progresses the cervix should be carefully watched for tears, and also to prevent it from slipping downward over the shoulders of the instrument or too high up along the arms. The dilatation should be carried on slowly, watching carefully the tightly drawn edges of the cervix

between the arms, especially on the two sides. In my cases I have found from twenty-five to thirty minutes necessary for a safe dilatation of from 10 1/2 to 11 cm.

After the desired degree of dilatation has been reached it has also been found of value to leave the dilator in place for a few minutes, that there may be a paralysis of the cervical muscle.

The results in the seven cases have been fairly satisfactory. Six out of seven mothers have lived, and six out of the seven children have been delivered living, the seventh being dead at the time the delivery was begun. Several of these children were premature and died after a few days, of inanition, but my point is that they were delivered alive.

There was a deep tear in two cases, but neither of them were serious enough to give great trouble, the hemorrhage in both being controlled by one suture in the angle. The uteruses in the remaining five cases showed but slight change after involution had been taken.

On the whole I feel that in the Bossi dilator, if used in the proper cases and carefully, we have a valuable instrument for rapid dilatation of the cervix, and one that should have its place in the armamentarium of every obstetrician.

PREGNANCY IN THE CONGENITAL MALFORMATIONS OF THE UTERUS.

CHARLES E. TAYL, M.D.,

GAUTHIER.

This brief consideration of pregnancy occurring in the congenital malformations of the uterus resulted from efforts to obtain full information regarding the dangers incident to a case of pregnancy in a bicornate uterus which recently came under my observation. Few text books gave me the information looked for, and in general I found the literature so scattered when facts were desired that I have endeavored to collect and present for your consideration the data obtained. The most recent articles published, aside from those appearing in the standard text books on obstetrics, which deal with these conditions at length are Kehr's monograph published in 1900, treating of "Das Nebenhorn des Doppelten Uterus," that of Wells, published in the American Journal of Obstetrics of 1900, entitled "Developmental Duplications of the Uterus and Vagina ; that of Starely, published in the same journal of 1902, treating of "Developmental Anomalies of the Uterus," and Simes' translation of Dehner's "Malformations of the Genital Organs of Women," published by Blakiston's Son & Co. of Philadelphia in 1903. In Wells' paper a large number of cases of pregnancy in such malformations of the uterus and vagina are detailed at some length, and include all he was able to find up to 1900.

To explain the origin of these malformations necessitates a preliminary statement regarding the development of the uterus, fallopian tubes and vagina from Muller's ducts. These normally lie parallel to the Wolffian bodies, on the outside, and appear at about the fifth week of fetal life as longitudinal thickening. By the

third month they are well developed, the anterior ends being markedly divergent and opening into the abdominal cavity. The posterior ends lie parallel, but end blindly. By the fourth month the middle third of the two ducts become fused, although the point at which this is to occur is shown at a much earlier period by the location of the round ligaments. This fusion extends rapidly forward but very slowly backward, being gradually transformed into the vagina, uterus and fallopian tubes, the latter originating from the diverging ends. At the same period the epithelial lining of the tubes and vagina appears. In the fifth month the cervix becomes manifest, and the fusion of the vagina and uterus is complete. The failure of these two ducts to unite at any point, or of either one to properly develop, results in the formation of these abnormalities and are the only etiological factors.

Two principal groups are in evidence: The first, due to delayed or incomplete fusion of the ducts, comprising all variations from absence of the uterus, including the indented or arcuate type, to the perfectly formed double or didelphic type of uterus; The second, due to failure of these ducts to develop synchronously, one progressing normally, the other becoming arrested at varying periods of its evolution. The latter group comprises the unicorn uterus and the bicornate uterus with rudimentary horn.

Associated with these malformations of the uterus, and as already stated arising in the same manner, is often found a more or less complete septum of the vagina, which may divide the cavity antero-posteriorly into two equal parts or into one large and one small canal. A not unusual variation of this abnormality of the vagina is due to a complete shutting off of some portion of one of the vaginal canals by a membrane, accompanied by an imperfect development of the cervix, and a normal functioning uterine cavity. The latter may menstruate and result in a collection of fluid back of this septum, known, according as it involves the uterus or vagina, as

a hematometra or hematocolpos. This cyst formation may result from an atresia of the passage at any point. Staveland states that when one part of the uterus is imperfectly developed, the vagina, on that side is likely to be occluded.

The variations in these abnormalities I have indicated in the accompanying diagrams taken from Kehrer's recent monograph on Pregnancy in the Rudimentary Horn, published in 1909.

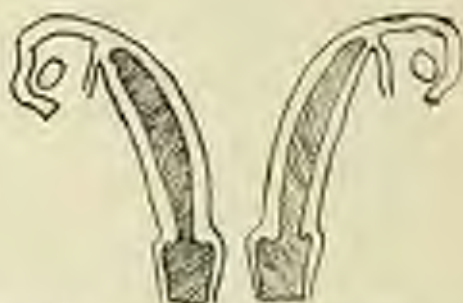


Fig. 1
Uterus didelphis Duplex Separatus.
Vagina duplex separata



Fig. 2
Uterus Pseudodidelphis.



Fig.³
Uterus bicornis duplex.



Fig.⁴
Uterus bicornis septus.



Fig.⁵
Uterus unicornis.



Uterus septatus bilocularis



Fig. 7.
Uterus subseptus unilocaris.
(Kuldmann)



Fig. 8
Uterus subseptus biforis
supra simplex (Kußmaul).



Fig. 9
Uterus intraseptus biforis.



Fig. 10
Uterus bicornis unicollis.



Fig. 11.

Uterus bicornis unicollis
mit Nebenhorn



Fig. 12.

Uterus bicornis subseptus
unicollis.



Fig. 13.

Uterus subseptus unicollis



Fig 14.

Uterus arcuatus.

Fig 15

Uterus incisiformis sive biangularis.
(Kaufmann)

As regards the topic which we are to consider in this paper (Pregnancy in the Congenital Malformations of the Uterus), we are interested simply in the types which permit of this condition. In general we may state that such pregnancies are rarely seen, many eminent men, with large opportunities for obstetric observation, never having had a case. It would seem, however, from statistics, that the proportion of women having such malformations who become pregnant is not materially less

than in those normally developed. From recent literature and by correspondence I have collected 165 cases, of which fifty-three have never been published.

The rarest of these congenital malformations in which a pregnancy is recorded as having occurred is the *Uterus Unicornis*, a condition resulting from the absence of one of the ducts of Müller. It is practically impossible to diagnose this abnormality during life, unless conditions necessitate the performance of an abdominal section. Some observers state that it may be associated with an imperfect development of the ureter, kidney and bladder on the opposite side, and Winckle refers to a case where these organs were missing on the one side. The vagina and uterus, as a rule, are both small, the latter tapering to the side of the pelvis and ending in the fallopian tube. A single round ligament and ovary are present. As a rule, menstruation is stated to be absent. A few cases of pregnancy, however, have been reported, and have resulted in normal labor. Probably careful examination in even these would reveal a trace of rudimentary horn, consisting simply of a knob of muscular and fibrous tissue, with or without some vestige of an accompanying tube and ovary. Such a case Dr. Walter B. Dorell of St. Louis has kindly furnished me, and as it is as yet unpublished, I will briefly relate the history. Patient twenty-eight years of age, who had been married six years without becoming pregnant, came to him suffering from nausea and vomiting, and presenting on examination what he supposed to be a new growth incarcerated in the pelvis. An abdominal section disclosed an oblong tumor, which close inspection proved to be a uterus, with but one horn, the superior portion being wedged beneath the promontory of the sacrum. On the right side, low down, was seen the right fallopian tube coming off from the side on a line with the bladder. With some difficulty this mass was elevated from the pelvis, when it became evident that it consisted of a one-horned, pregnant uterus. On the op-

posite side, about half way down, was a small knob of muscular tissue, suggesting a small subperitoneal fibroid, but which closer examination demonstrated to be a left rudimentary horn. No trace of tube or ovary could be found. Dr. Deroset states that without interfering further, he closed the abdomen. Patient went on to full term, and was delivered normally of a living child. This case undoubtedly ranks as one of the rarest in the history of obstetric malformations.

The *Didelphus Uterus* represents the extreme type of a *Uterus Bicornis Bicollis*, and is due to total failure of Müller's ducts to unite. Examples of this malformation are rare, and authentic cases of pregnancy occurring as a complication are still more so. Varying degrees of separation of the bodies may exist, and cases are noted where the rectum and bladder lay between them. The recorded histories of this type would indicate that a pregnancy may be safely allowed to go to full term, other factors permitting. I have secured records of eight such cases, with one death, the latter due to a ruptured uterus resulting from the use of high forceps, a hysterectomy having been resorted to in vain. These eight women gave birth to seven full term children and also had thirteen miscarriages and premature births, five of the latter occurring with one patient and four with another. Von Engel reports a unique case of this type having two vulvæ, two bladders and two urethræ. A diagnosis of this malformation, complicated by pregnancy, as distinguished from the more common type of bicornate uterus, can seldom be made prior to death or operation.

Bicornate Uterus: Of this type there are two principal varieties, the *Uterus Bicornis Duplex* and the *Uterus Bicornis Unicollis*. Dunning quotes ninety-seven cases of uterine abnormalities, of which fifty-two were bicornate uteri. Of the duplex variety I have collected eighty cases, who have given birth to one hundred and five full term children besides having had sixty-three

miscarriages or premature births. Of the Unicollate type I have collected nineteen cases, with twenty-seven normal births and seventeen miscarriages or premature births. As the description of the exact type of abnormality is occasionally given as "double uterus," without further description, in cases found, it is quite possible that the proportion of the bicollate to the unicollate variety is incorrect. If both horns are well developed, there is comparatively little risk of rupture of the uterus, and a spontaneous delivery may be expected. Of the Duplex variety there were three deaths, two being due to eclampsia and one following a hysterectomy for a supposed rupture of an ectopic pregnancy. Of the Unicollate variety there were no deaths. It is evident from these figures that there is a greater tendency in both varieties to abortion than where we have to do with a single uterus. If the unimpregnated horn is complicated by the presence of a hematometra, or if we have to do with twins, the influence of the additional pressure may tend to induce miscarriage. There is probably a very slightly increased danger of rupture of the pregnant horn, even though well developed, owing to some weak point in the defective uterine wall. At term, a hematometra may rupture during labor or may block the exit of the child, exactly as a fibroid tumor or fluid tumor would under the same circumstances. The recto-vesical ligament may interfere with delivery by preventing the straightening of the pregnant uterus, thus interfering with the entrance of the head or breech into the pelvic cavity. In the bicollate type of uterus, with two distinct cavities, obliquity of the child does not tend to prevent proper progress of the labor nearly as much as in the unicollate variety, where it is not unusual for this malposition to persist until rectified by operation. In extreme instances one side of the uterus may contain the child's head, the other the buttocks. Termination of such malposition can only be accomplished through manual interference. Schatz states that the ratio of head to breech

presentations is two to one. A number of authorities also call attention to the great frequency of twin pregnancies in this type. Two ova may occupy one horn or one may exist in each. A case reported by Boss of Brighton had a miscarriage of twins from one side, and three months later gave birth to a child at full term from the other horn, delivery being normal. A number of instances are also recorded of miscarriage or delivery of a living child from one side of the uterus, followed in a short time by the birth of another from the opposite side. In many of these cases the fetuses have been of different ages. One of the indications which leads us to make a diagnosis of an extra-uterine pregnancy is the passage of decidua from the uterus. It is a well-recognized fact that this is also of frequent occurrence in the case of a double uterus, true decidua being expelled from the unimpregnated side. A simultaneous pregnancy is stated by Staveland to be more apt to occur when there is some material defect in or absence of the vaginal septum, thus allowing the spermatozoa to enter both cavities at or about the same time.

If the placenta be attached to the septum in any of these malformations, imperfect contractions of the uterus may follow, with serious hemorrhage. The uterine horns, instead of extending laterally, may lie one in front of the other, the cervical portion being twisted on its long axis. The unimpregnated horn in such cases may obstruct labor by getting in front of the presenting part, or the impregnated posterior horn may become incarcerated under the promontory of the sacrum. Giffes and B. H. Wells note that inertia of contraction is often present in these labors in double uteri, probably the result of there being no true uterine fundus to contract. During labor both horns may contract simultaneously in the case of a pregnancy in one horn, menstruation may or may not persist in its mate.

The presence of a tough vaginal septum in these varieties of double uterus may seriously obstruct labor, al-

though there are numerous instances of children being born through one of the vaginal passages, without rupture of the septum. It is undoubtedly good judgment in all of these cases to excise the septum previous to or during pregnancy. Excision of the vaginal septum is also stated by some observers to give relief to an existing dysmenorrhœa.

Cases of pregnancy in double uteri, complicated by retention cyst of the opposite side, have been noted. This may arise from occlusion of the opposite vaginal canal at any point, or of the cervical canal. The contents of these cysts may be blood, serum, or a varying combination of both. Their recognition and diagnosis depends upon a careful consideration of the possibilities of their existence in every fluctuating tumor presenting into the vagina. Treatment consists in immediate, free incision, under aseptic precautions, with dry packing.

The lessened resistance of the lining mucous membrane of these sacs invites the development of sepsis. Under such circumstances with evidence of peritoneal infection, the abdomen should be opened and drained and at the same time the ruptured tubes, which are almost invariably found, should be removed.

Case of Pregnancy in Uterus Bicornis Duplex.

My patient, Mrs. X., aged thirty-four years, married, first came under my observation while single, for repeated attacks of intestinal indigestion dating back several years. Her family history as regards abnormalities of pregnancy was negative. Her menstruation which began at fifteen years of age, was always delayed a few days until twenty-two or twenty-three years, and since then has been regular. The first two days the flow was profuse and she suffered extreme pain until her pregnancy. Since then it has been normal.

In the spring of 1900, subsequent to her marriage, she consulted a Boston physician as to her condition. He examined her under an anæsthetic, and finding a double

vagina and uterus, excised the vaginal septum, curetted and divided both uteri. She subsequently came under my care again, and I was able to confirm the observations of the Boston surgeon. Physical examination made then revealed a typical *Uterus Bicornis Bicolis*, the division commencing at the external os, and the double cervix being united by a thick fibrous membrane, which extended up to the point of division of the horns. The latter branched off to the right and left, at right angles to the axis of the vagina. At their distal ends could be plainly felt the somewhat large ovaries, one on each side. The bimanual examination was peculiarly easy, on account of the thin and relaxed abdominal walls. On account of the dysmenorrhea, but with no thought of facilitating conception, it was deemed best to try gradual dilatation of the two horns. This was accomplished without much difficulty, by doing a little at a time, and was kept up twice a week preceding each period for several months. After a number of such treatments, she became pregnant in the right horn, and was confined after a short uneventful labor, in September, 1903. During the first four months of the pregnancy, the patient suffered from frequent, severe, paroxysmal pains localized in the swollen uterine segment. So threatening were these pains, and often so extremely suggestive of a possible rupture, it seemed advisable to keep a trained nurse in constant attendance during the entire pregnancy of the patient, and also to have all preparations made for an emergency operation. From the third to the fourth month intermittent flowing presented an additional disturbing factor. This was not profuse at any time, however, and finally subsided under absolute rest in bed, combined with the use of analgesic. It was possible to feel the unimpregnated horn of the uterus at all times during pregnancy, and I had the pleasure of demonstrating this very interesting condition to several different physicians before and after confine-

ment. At the labor, the septum dividing the two cervical openings was torn nearly up to the internal os, so that today a speculum examination alone does not reveal the presence of a double uterus, without using two probes. A bimanual examination, however, still enables one to easily recognize the malformation.

Pregnancy in the Rudimentary Horn is a condition much more rare than that which we have just considered, and is also difficult of recognition during life without operation. The pedicle of the rudimentary horn may be patulous and connect with the cervical canal, as stated, or it may be solid. The canal of this rudimentary horn, if present, may be closed at its tubal end, or at both ends. The rudimentary body itself may consist of a simple knob, with or without a pedicle. This knob may be very thick, or may gradually taper toward the tubal end. The developed half of the uterus may menstruate normally. In the case of the undeveloped half, menstruation may be slight and retarded, or if the pedicle is solid, may collect, forming a fluid tumor, known as a hematometra. A pregnancy may occur in either half, normally in the large horn, and also in the rudimentary horn, if the canal is patulous and the muscular structure sufficiently well developed. When the pedicle is solid, and the tubal end is open, cases of pregnancy are reported resulting from transmigration. Rupture of the undeveloped half usually occurs by the fourth month, at the juncture of the horn with the developed half, but without a laparotomy, this cannot be differentiated from a ruptured extra-uterine pregnancy. Muller reports three cases of pregnancy in this rudimentary horn which have gone to term. A most exhaustive work by Kéllner, reporting some eighty-two cases of this malformation, which had occurred prior to 1900, has been published. Of these 78 per cent. did not communicate with cervical cavity, and 82 per cent. died, the majority from rupture and hemorrhage. Rarely the fetus has been retained and macerated or converted into a lithopedion. A diag-

nosis of pregnancy in a rudimentary horn was recorded by Kehrer in 20 per cent. of his reported cases. Usually this is impossible without a laparotomy. When the abdominal wall is thin and relaxed, a point of diagnostic value is the possibility of demonstrating a deep sulcus between the fundus of the normal uterus and the pregnant mass. On abdominal section, it will be noted that the round ligament, instead of coming off at the outer side of the uterine horn, and between this and the pregnant mass, is attached to the middle of the latter, also that the fallopian tube of the impregnated side is attached to the side of the horn.

Treatment: If the pregnant horn is rudimentary as regards its development, all authorities are agreed that its early removal is imperative, as statistics show that if left, the danger of rupture is great. This operation had been done forty-four times up to 1900, as a result of such diagnosis, with a mortality of 13.3 per cent. as noted by Kehrer and Wells.

The Septate Uterus, of which the

Uterus Bicornis Septus and Sub-septus,

Uterus Septus Bilocularis,

Uterus Sub-septus,

Uterus Infra-septus,

Uterus Sub-septus Unicollis,

Uterus Arcuatus,

are but variations, presents an appearance similar to the normal organ, and is divided by a thin septum extending from the fundus more or less of the way to the cervix, the existence of which is due to the union of the two inner sides of Müller's ducts, without the absorption which normally should follow. Portions of this septum may be wanting either above or below. In the Arcuate variety the fundus is deeply indented, giving a cordiform appearance. I have collected forty-two cases of pregnancy in the septate type of uterus. These forty-two women had forty-seven children at term, without any

mortality, and fifty-three premature births or miscarriages.

It is stated that this type of malformation predisposes to the development of twin pregnancies. From the large number of miscarriages, it is evident that the presence of the septum, on which the placenta may be fastened, is a direct predisposing cause of premature labors or abortions. Statistics likewise show that it may also predispose to post-partum hemorrhages. These facts are noted by all writers, and are borne out by my statistics. Out of 121 pregnancies among forty-two women with the septate type of malformed uterus, fifty-three ended in premature labors or abortions.

The Arcuate variety and the Septate variety, where the lower portion of the septum is missing, are stated to predispose to the transverse position of the fetus, the head and shoulders lying on one side, and the extremities and breech on the other. This malposition has, in several cases which I have records of necessitated operative interference. The same difficulties in labor presented by other types, where a vaginal septum is present, may arise, and are met by excision of this membrane. Appreciating the possibilities of implantation of the placenta on the septum of the uterus, and also of a malposition of the fetus in utero, several operators have suggested the excision of this membrane in every case where it is recognized previous to pregnancy. Two or three men have reported normal pregnancies occurring after this operation, where miscarriages had previously resulted. My own experience in this type is limited to one case:

Mrs. V., age thirty-nine, came to me some years ago for relief from a complete prostaticia of the uterus. She gave history of two miscarriages, and four full term pregnancies, all normal, with the exception of the second, which was followed by a profuse post-partum hemorrhage. Examination showed a thick vaginal septum extending from the vulva nearly to the cervix, the parti-

tion evidently having been torn through at one of her labors. The perineum was torn through to the sphincter muscle, and there was also a large laceration of the cervix. The fundus presented a marked depression, typical of the urnate type of bicornate uterus. With the assistance of Drs. Hall and Dickerman of this city, I excised the septum and repaired the tears. At a later date I was called to attend her at a miscarriage at fifth month. Severe post-partum hemorrhage necessitated cleaning out the uterus, at which time I was able to distinctly feel a thin septum, to which the placenta had been partially attached. Patient recovered, and has not been pregnant since.

Conclusions.

- (1.) That fecundity seems as marked as in the case of the normally developed woman.
- (2.) That cases of pregnancy occur in congenital malformations of the uterus much more frequently than is generally recognized.
- (3.) That both horns may be pregnant at once, the conception of each fetus occurring at the same or different times.
- (4.) That where repeated pregnancies occur in utero, with both horns well developed, they may alternate in function.
- (5.) That all types of malformation, but more especially those where a well-marked uterine septum is present, predispose to abortions or premature labor.
- (6.) That abnormal presentations and interference with labor are more frequent than in pregnancies in normal uteri, and result in an increased mortality as regards the child.
- (7.) That pregnancy in the rudimentary horn is as dangerous as when located in the fallopian tube, and should be subjected to the same treatment.
- (8.) That in all other types than pregnancy in a rudi-

mentary born, if uncomplicated by a growth or obstruction to labor, the maternal mortality is but slightly more than that of a normal pregnancy.

(9.) That barring these exceptions, pregnancy in a double uterus should not be interfered with.

(10.) That a vaginal or uterine septum should be removed whenever found.

INFANT FEEDING WITH COW'S MILK.

H. HERMAN STEELE, M.D.,

NEW HAVEN.

On this long mooted subject I have absolutely nothing new to say; nor, is there, in my paper, any attempt at anything new.

Rather, it is an effort to direct backwards pointing toward the thoughtful use of cow's milk and from the unthoughtful use of proprietary artificial foods as thrust upon us by their manufacturers and urged upon us "for a trial" by parents, the deluded subjects of advertisements.

Although the title of my paper is Infant Feeding With Cow's Milk I had it necessary for sake of argument to speak of other foods too generally used, I believe, at this tender age.

How often we hear, in answer to our questions while taking the past history of a case, about the following:

"As I was unable to nurse the baby after the first few weeks we tried, first, modified cow's milk. This, not agreeing after a few day's trial, the baby was put on—" and here follows an appalling list of proprietary foods each tried from a few days to a week or so, "until at last one was found which suited."

My thought for this answer is always—"You did not find a food that suited in your sense of the expression but you did have a baby who has lived through this abuse of unscrupulous experimentation in spite of you?"

By what right have we to give a few week's old baby cereals, starch, baked flour, cane sugar, digested starch (maltose or dextrin) etc., etc., when not one of these substances, their ingredients or derivatives are found in milk human or animal?

Why believe them in themselves, or when added to cow's milk, to make a nearer substitute for mother's milk than is modified cow's milk? Is a nearer substitute made by adding ingredients absolutely foreign to the original substance or is it simply because the manufacturer, his attractive advertisements and time-consuming drummer says so? It seems to me this is about the only reason for malverting in such manner the delicate unconsumedness of the baby's gastrointestinal canal.

A second misleading suggestion is given us through the proprietary food advertisements. It is the rules for mixing food advertisements. It is the rules for feeding. They are one and all based on the infant's age. This is manifestly absurd.

How often I see babies in Dispensary and private practices fed by rule of bottle of baked flour directions I dislike to recall. The frequency of over-feeding in quality is, maybe, the most marked. Many a marasmic baby of twelve months, weighing but twelve pounds or so, vomiting and regurgitating every feeding, having constant colic, curds in the stools, fermentative intestinal indigestion, etc., is found to be taking proprietary artificial food modifications suitable for twelve months and twenty pounds of normal development because, the unfortunate is twelve months old!

How wrong this is one cannot find words to say. How pitiful it is when practised by conscientious, painstaking intelligent mothers who have taken the proprietary food directions for Gospel truth and who, of course and most naturally, believe because their babies are weak, undersized, underweight, and undeveloped, they should be given a stronger food.

My opinion is a baby should be fed as to quality, quantity and interval, not by age but according to its weight, development, power of digestion and assimilation.

Each weaning and feeding case should be studied in-

dividually; studied as an adult patient is studied for the administration of treatment and drugs.

A tendency toward regurgitation, colic and constipation, or the above conditions firmly established, cannot be scientifically, or said to be even sensibly, attacked by the unthoughtful administration of proprietary foods. We can control their ingredients by dilution and dilution alone. Shall we wish to weaken the proteid for instance we can do it, but the fat and sugar is diluted in proportion. We have no control of separate elements as we have in cow's milk to a certain and fairly satisfactory extent.

A case in point illustrating how unreliable are some proprietary manufacturers' directions has lately come to **my notice**. It is in form of a physician's pocket card for home modification of milk. In the first column are ages from the first week to the twelfth month. In the second (and this is the one to note) it directs: "Take of upper part of quart bottle of fresh cow's milk, 'top milk'" such and such a quantity for such and such an age. The following columns enumerate the remaining ingredients, (including the manufacturer's) to be added, with last column containing the figured percentages of fat, sugar and proteid.

How indefinite is this, "take of upper part of quart bottle, 'top milk.'"

I called the drummer's attention to it, asking if he presumed all parents and physicians would understand it means upper 1/3 or 10 per cent. milk. He replied "of course they would," I doubt it. This, however, is not the glaring misleading fault in the card.

Going down the second column to twelve months I find to take (still of "upper part of bottle, 'top milk'") so many ounces for the modification for this age. A little figuring, assuming the "upper part" the upper one-third (as the drummer told me of course would be understood) and I arrive at a modification for a year old baby of Fat

7.8 per cent., Proteid 2.9 per cent. On the card the Fat is 4 per cent.; Proteid 3 per cent.

Should I point this out to the drummer he would undoubtedly say, "why, of course, at twelve months you should use whole milk for your modification." That is near the truth but the card does not intimate it even.

So, by following the directions on this card, we would be feeding a year old baby over 2.5 per cent. too high Fat and reaping in consequence the reward of our folly and carelessness in taking the manufacturer's say-so on his apparently scientific percentage feeding card.

In these proprietary foods the item of expense is not to be disregarded. I but wish all the money expended broadcast upon them might find its way to the most worthy dairymen striving to give us a clean, wholesome cow's milk, not only for infant consumption but for the whole community as well.

Proprietary, artificial foods have their value, I acknowledge, but I believe only in the sense of drugs, to be used cautiously for a limited time, and with full knowledge of their ingredients.

I think the older practitioners here will agree with me that drugs have but a limited value in Pediatrics balanced against sound sensible feeding, care and nursing.

Reich, Holt, Chapin, Northrup, Freeman, Jacobs, although the latter has always advised a cereal added to cow's milk in the dilutant for its mechanical effect in breaking up the curd and the other leaders in Pediatrics give us as the result of their long labor in experience, practice, observation, scientific analysis and study, the advice to feed cow's milk when the baby is deprived of its natural nursing.

I believe these are the men we should follow. They have made their point clear; they continue their work and investigation to instruct us in writing and lecture. One and all they stand by cow's milk as the years pass by while new proprietary foods spring up like weeds to check the fertile growth.

In the beginning administration of cow's milk one thing to be borne constantly in mind is, not to give it in too strong dilutions. Its proteids are chemically different from mother's milk and decidedly harder of digestion as we all know, and is repeatedly called to our attention in reading and troublesome experiences. Knowing, as we do this particular peculiarity there is always the temptation when, of necessity we must needs wean in very early life, to help out by peptonizing. I feel this as a routine, a great mistake.

Far better, in my experience, is to begin our artificial feeding with very low percentages no matter the age or development of the infant or the analysis of the mother's milk of which the baby unfortunately must be deprived.

Begin with too strong a milk mixture and the baby will not only not be nourished from lack of ability to manage the new food but will in many cases be made ill. In consequence we have added to our problem a sick baby to feed.

Begin so low in percentages of fats and proteids the nurse will tell the mother the baby is being starved is a good rule! If the food is assimilated, if there is no colic, if good result it is very easy to go ahead. It is not an experiment to put a food immediately into the baby's stomach just exactly suited to the particular baby's development and digestion. That is impossible. It is first of all "doing no harm" (for we all know it hard to starve a baby in a few days); it is secondly giving the infant's digestive organs a chance to learn to take care of a new and foreign food.

In the vast majority of cases the organs of digestion will learn to this new duty if not crowded too fast and too hard.

I believe we may ignore a lack of gain in weight for the first week or so if we succeed in obtaining with our new food a quiet baby, sleeping normally, having no regurgitation or colic and with good stools. With a careful increase in the strength of the food, the infant taking it

without symptoms of indigestion, the gain in weight will come and it is not the sugar, cereal gain of flabby flesh with possible and probable false signs of rickets, scurvy, etc.

To dilute and modify cow's milk easily and intelligently, knowing always just where we stand in percentages, I know of no better way than to follow Dr. Holt's directions: That is to divide the bottle into three parts, upper one-third, upper half and whole milk, containing, generally, 10 per cent., 7 per cent., and 4 per cent. respectively. Next to learn what this means in percentages of fats, sugar and proteids. I say to learn what this means advisedly for one of my commonest experiences is to hear, "we have tried Holt's modifications with no success." On question I find they have been no nearer Dr. Holt's standards than is the old sugar test!

Having a clear general idea of percentage feeding is almost always sufficient for by that knowledge we have reasonable weapons to correct colic due to too high proteids, constipation to too low or too high fats and general gastric or intestinal disorders within reach of rational feeding therapeutics.

I do not believe an over delicacy in percentages is necessary. Struggling between hundredths of per cents., changing infinitesimally day by day is overshooting the mark. I do believe, however, the general tables as given by Dr. Holt, for instance, should be comprehended by all who have occasion to wean and feed infants. There is logic in it, reason and success.

CONTRIBUTION TO THE STUDY OF DYSENTERY.

A. R. DUFFENDORF, M.D., AND JESSIE W. FISHER, M.D.,

BRIGHTON.

The present contribution is the result of the second year's study of Asylum dysentery in the Connecticut Hospital for Insane and comprises the report of the epidemiology and bacteriology of sixty-eight cases occurring during the summer of 1904. The report of the first year's investigation was published in the Report of the Connecticut State Board of Health, 1903.

Epidemiology.

The cases all occurred in the buildings making up the central group, the aggregate population of which is 2,196, while in the isolated cottages, in which no cases occurred there are 177 patients. There were 70 cases in all occurring during the summer months, making a percentage of 3.2 of the population of the infected buildings.

	No. of Cases.	% of Population.
North Hospital,	19	4.4
Middle Hospital,	16	3.4
Central Hospital,	9 women)	2.9
Central Hospital,	8 men)	
Annex,	7	18.4
Main Cottage,	7	2.4
South Hospital,	3	.7
Hubbard Cottage,	1	2.5
	70	

A brief summary of the cases occurring in the different buildings is as follows:

North Hospital.

Case 1. S. M.—Age 70, May 28, 1904, Infirmary Ward, female service. At first stools bloody and mucous, then

watery. No temperature. Patient weakened rapidly, though formerly quite smart. Duration one week. Patient had been on liquid diet.

Origin: Unknown.

On the first day of the disease twenty plates were made from a mucous stool containing little fecal matter, but the bacillus dysentericus was not isolated.

Widal reaction on the 9th day negative to Harris bacilli 1-40.

Case 2. N. S.—Age 61, June 3, 1901, Ward 5, Male. First day, six stools, slimy, one tinged with blood; some griping, temperature 100.5 degrees, thence none. Second day, two stools. Recovered by fourth day.

Origin: Daily played cards with Case No. 3, otherwise unknown.

On the first day of disease forty plates were made, but bacillus dysentericus was not discovered.

Widals were negative to both Harris and McG— bacilli on the the first three days, as well as two months later.

Case 3. M. C.—Age 60, June 3, 1904, Ward 4, Male. June third, seven stools, all slimy, few bloody, no temperature, some griping; second day, three stools; third day, two stools. Recovered by fourth day.

Origin: Associated intimately with Case No. 2, also had eaten heavily of lettuce, otherwise unknown.

On first day of disease plates were made from a stool containing mucus, blood and feces, with negative results.

On first two days Widal's were negative to Harris bacilli, but two months later positive reactions were obtained with Harris and McG— 1:100 in two hours.

Case 4. P. McG.—Age 65, June 6, 1901, Ward 2, Male. First day, three stools, with much blood and mucus; temperature 99.6° to 100.6°, stools averaged two and three until fourth day, but temperature dropped to normal on fifth day. Patient was quite sick.

Origin: Unknown, save that patient had been "ill" for two to three weeks and was weak.

On second day of disease, isolated several colonies of bacillus dysentericus (Harris) there being twenty-five plates made from a mucous stool.

On the seventh day Widal was negative with Harris bacilli, but positive next day.

Case 5. C. R.—Age 50, June 7, 1904, Ward 2, Female.

First day many stools becoming mucus in afternoon, temperature 101.5° all day, also vomiting. Next morning temperature 100.8° , stools (8) bloody and mucous; thence temperature subnormal, third day nine bloody stools, thence stools diarrheal until ninth day.

Origin: Unknown.

On second day of disease twenty-four plates were made from a stool containing little mucus, much blood and little fecal matter, from which were isolated four colonies of the acid type of dysentery organism.

Widal reaction positive on third day with Harris bacilli continuing positive for a month.

Case 6. M. H.—Age 65, June 26, 1904, Ward 1, Male.

First day three stools, some mucus, no blood, with no temperature; thence averaged two and three mucous stools until fourteenth day. Never any griping.

Origin: Feeble, but active old man, otherwise unknown.

On eleventh day of disease ten plates made from stool containing small amount of mucus from which forty colonies were taken with negative results.

Three Widals at intervals of several days after the eleventh day were positive.

Case 7. P. P.—Age 40, July 26, 1904, Ward 4, Male.

First day three bloody and mucous stools, temperature 100.2° ; second day eight bloody and mucous stools, temperature 100.8° ; third day one similar stool, temperature 100.6° ; fourth day two mucous stools, temperature normal, thence stools and temperature normal.

Origin: Unknown, but patient very filthy. Unassociated with Case No. 3.

Twelve plates from a characteristic stool at onset of disease presented thirty-five suspicious colonies, which proved negative.

Widal was positive first day 1:50 and later in dilution 1:100.

Case 8. B. R.—Age 65, July 22, 1904, Ward 1, Female. First day, seven stools, the fifth being bloody, temperature 99.6° and following this subnormal. Stools bloody and mucous until fourteenth day, but only averaging two daily.

Origin: Unknown.

On day of onset twelve plates from a characteristic stool presented thirty-five suspicious colonies, but the bacillus dysentericus was not recovered.

On tenth day the first positive Widal reaction was obtained.

Case 9. G. P.—Age 55, July 25, 1904, Ward 3, Male. First day many stools at first diarrheal, later with much blood and some mucus. No temperature, no griping. Diarrheal stools at least three daily, with some mucus continued three weeks.

Origin: Attack last year, otherwise unknown.

Second day of disease ten plates from stool with little mucus yielded forty-five suspicious colonies, but no bacillus dysentericus was isolated.

Widals were positive on second day and after.

Case 10. A. J.—Age 45, July 25, 1904, Ward 3, Female. First day about seven stools, watery and with some blood and mucus. Temperature 103°, but falling by night to 98.6°. Appeared very sick. Second day three stools with more mucus and blood, temperature rising to 103.8°. Third day, five stools, temperature 101°. Fourth day, three stools, temperature 102.4°. Temperature falls next day to 100° and thence to normal, and stools averaged two daily until ninth day.

Origin: Unknown.

On second day of disease twelve plates from mucous and fecal stool yielded ten suspicious colonies, but no bacillus dysentericus.

No positive Widal's were obtained.

Case 11. S. L.—Age 23, July 26, 1904, Ward 2, Female. First day no notes save that stools frequent, with blood and mucus. No temperature. Thence stools about five daily mostly nocturnal for several days.

Origin: Unknown.

On first day of disease, ten plates from a mucous and fecal stool yielded (suspensions on ice for 18 hours) fifty suspicious colonies, but no bacillus dysentericus.

Positive Widal's on third day and after.

Case 12. U. L.—Age 56, July 27, 1904, Ward 5, Male. First day, seven stools, mucous, but not bloody. Temperature 104.6° . Quite ill. Second day, eight stools, temperature 104° , stools mucous and bloody. Third day, 102.8° ; thence gradual diminution of stools to seventh day at which time temperature first became normal.

Origin: Absolutely unknown, no probable association with Case No. 2.

Day of onset ten plates from mucous stool yielded fifty suspicious colonies, five of which answered all tests, of the Harris organism, but the agglutination. On the sixteenth day a second series of twelve plates gave negative results.

Positive Widal on third day and after.

Case 13. D. C.—Age 24, July 28, 1904, Ward 5, Male. First day, seven stools, mucous and bloody from the beginning, temperature 99.8° ; second day, four stools, no temperature; third day five stools, temperature 100.6° . Stools and temperature normal on sixth day.

Origin: Unknown; no probable connection with cases No. 2 or No. 12.

First day of disease nine plates from a mucous and bloody stool yielded sixty suspicious colonies, but no bacillus dysentericus.

Widal positive on first day of disease.

Case 14. O. Van L.—Age 3½, July 28, 1904, Ward 3, Male. First day, eight stools, the first few only being bloody, the rest slimy; temperature 101.2°, much griping. Second day, thirteen stools slimy and accompanied by much pain, temperature 100.8°, thence temperature normal, but stools on third day, seven; fourth day, twelve and fifth day, seven; all slimy; then normal.

Origin: Absolutely unknown, certainly no connection with case No. 9.

Day of onset nine plates from a mucous and bloody stool presented sixty suspicious colonies of which two only qualified as dysentery bacilli of Harris' type.

All Widal's were negative.

Case 15. J. C.—Age 3½, July 28, 1904, Ward 3, Male. First day, thirteen stools with much blood and much mucus; temperature 101.6°, much griping; second day, twelve stools, mucous and bloody, temperature 101.6° and much pain; third day, six stools, mucous, temperature 100°; thence temperature normal, but stools on following day six, and on next three.

Origin: Ate many green apples. Otherwise unknown.

On first day of disease, suspensions from bloody, mucous stool were made and kept on ice until two days later, when twelve plates were made, from which sixty colonies were picked with negative results.

Widal positive on first day of disease.

Case 16. K. T.—Age 28, July 28, 1904, Ward 3, Female. First day, several diarrhoeal stools, some mucous, little blood, no temperature; second day same, third day recovery.

Origin: Unknown, no probable association with case No. 10.

Suspensions made from a mucous stool on first day of disease were kept on ice and plated five days later. Twelve plates yielded eighty suspicious colonies, but none were positive.

Widal's were negative.

Case 17. L. P.—Attendant, age 28, July 29, 1904, Ward 2, Male. First day six stools, mucous and bloody, temperature 101.6°; second day, five similar stools, temperature 100.6°; third day two similar stools, temperature 99°, thence temperature and stools normal, but in bed until fifth day.

Origin: Wholly unknown, had been back one day from vacation of two weeks.

In the months of August and September two more cases of typical dysentery occurred in Ward 4, Male side, M. and R., in which the bacteriological tests were not made. Also in these cases no definite etiological factors were obtained.

Of the twelve wards in this building only nine wards had dysenteric patients. Of these nine, one had four, two each had three patients, and three each had two patients. In three of these wards two patients became ill within three days of each other and in one ward three patients became ill in three days, but in all of these instances as well as in the matter of contagion from ward to ward we have been wholly unable to establish any source of infection from contact either directly or indirectly.

Middle Hospital.

Case 18. F. H.—Age 30, July 5, 1904, Ward F., Male. First day seven stools, much mucus, little blood, temperature between 100° and 100.2°; second day, five movements similar, temperature 98.2° and 100.2° until fifth day averaged three and four bloody and mucous movements and temperature between 98.2° to 100.4°.

Origin: Suffered from a chronic diarrhea, with frequent exacerbations; otherwise unknown.

On first day of disease thirty-four plates from a stool containing mucus and feces yielded fifty suspicious colonies which failed to qualify as bacillus dysentericus.

Of seven Widal's taken at intervals of several days only one on seventh day was suspicious, others were negative.

Case 19. B. C.—Age 40, July 5, 1904, Ward D, Fe-

male. First day twelve stools, with mucus and some little blood, temperature 101° ; second day, nineteen stools, temperature 100.4° ; thence until sixteenth day (temperature varied from 100° to 102.6° and stools varied from three to nine daily, continuing mucous.

Origin: Unknown; an attack one year before.

On first day of disease, thirty-four plates were made from a bloody and mucous stool and sixty-five suspicious colonies were picked with negative results.

First positive Widal was obtained on the fourteenth day of the disease.

Case 20. J. S.—Age 45, July 5, 1904, Ward F, Male. First day, seven stools, with much blood and mucus, temperature 101° ; second day, six stools, similar, temperature 100.6° ; thence gradual improvement, stools and temperature normal on sixth day.

Origin: Gluttony on July fourth, (peanuts and candy); tendency to diarrhea following over-eating; a previous attack two years ago.

On second day of disease, twenty-two plates from a mucous stool presented twenty-five suspicious colonies which failed to qualify as bacillus dysentericus.

Positive Widal obtained on third day.

Case 21. A. A.—Age 25, July 15, 1904, Ward B/C, Female. First day, many movements, much mucus, some blood, vomiting, temperature 99.2° . No record of number of stools after this. Second day temperature 99° , recovery by third day.

Origin: "Ate green apples," otherwise unknown.

On the first day of disease, fifteen plates made from a bloody and mucous stool resulted in thirty suspicious colonies of which two qualified as bacillus dysentericus.

Widal on second day was suspicious 1:50 and on fourth day positive 1:100 Harris and McG—

Case 22. W. C.—Age 28, July 17, 1904, Ward F, Male. First day, very many stools, no blood, but some mucus; second day eight stools, some blood, mostly mucus, no

apparent pain. Temperature 99.8° ; third day, six stools, no temperature, only trace of blood; fourth day, six stools and fifth day four; thence normal.

Origin: Unknown, patient very untidy; no probable contact with cases No. 18 and No. 20.

On second day of disease, twelve plates made from a mucous and bloody stool, presented forty suspicious colonies, only three of which qualified as bacillus dysentericus of Harris' type.

One positive Widal reaction was obtained on sixth day.

Case 23. M. N. (Nurse).—Age 22, July 18, 1904, Ward C, Female. First day, number of stools and character not known; second day many stools, bloody and mucous, temperature 101.4° ; third day temperature 101.6° , but only two stools (bloody and mucous). Fourth day, two stools still bloody, temperature 100.6° ; fifth day, temperature 100.4° , no stools.

Origin: Cared for patient M. R., who seven days previously had four diarrheal movements with temperature of 100.2° one day, following ingestion of bananas, oranges and green apples. An attack the year before, but not here.

Fifteen plates made from mucous and bloody stool on third day of disease, yielded thirty suspicious colonies, of which fifteen responded to all cultural tests, but failed to agglutinate at 1:200 and were discarded.

Widal positive on fourth and ninth days 1:100, Mc G. No. 25 bacilli.

Case 24. E. A.—Age 35, July 19, 1904, Ward G, Male. First and second day no record kept of stools or temperature. Third day temperature 101.6° , stools with much mucus, but no blood, patient quite weak; fourth day temperature 100.4° , no record of stools.

Origin: Wholly unknown.

On fourth day of disease, ten plates were made from a stool of mucous and fecal material, with negative results.

First positive Widal on tenth day of disease.

Case 25. G. K. (Nurse).—Age 26, July 20, 1904, Ward C, Female. First day, four diarrheal stools, no temperature. Second day, movements more frequent, character not noticed, much griping. Third day, six stools, mucous streaked with blood, no temperature. Fourth day, two thin greenish stools.

Origin: Helped to care for room-mate, No. 24, and for patient noted in that case; otherwise unknown.

On third day of disease, fourteen plates made from a stool of fecal material streaked with mucus and blood. There were only fifteen suspicious colonies, none of which proved to be bacillus dysentericus.

One Widal was taken on the fifth day of the disease, which was negative.

Case 26. A. M.—Age 26, July 23, 1904, Ward B, Female. First day, four stools, mucous and bloody, temperature 101.2° ; second day, eight stools, mucous and bloody, temperature 100.6° ; third day temperature 100.2° in P. M., only one stool. Stools normal by sixth day, as well as temperature.

Origin: Wholly unknown.

On second day of disease, twelve plates from a mucous and bloody stool, yielded fifteen suspicious colonies, but only two were bacillus dysentericus of the Harris type.

First positive Widal obtained on tenth day.

Case 28.—M. E.—Age 39, July 25, 1904, Ward D, Female. First and second days a few bloody and mucous stools, temperature could not be taken. Rapid recovery.

Origin: Wholly unknown, no probable contact with Case No. 26.

At onset of disease, twelve plates from a bloody and mucous stool presented fifteen suspicious colonies, but none proved to be the bacillus dysentericus.

First positive Widal on eleventh day.

Case 28. M. E.—Age 39, July 25, 1904, Ward D, Female. No observations could be made, save that had

many bloody mucous stools, no apparent temperature. Recovery on fourth day.

Origin: Admitted eating green apples. No probable contact with Case No. 19.

Day of onset, twelve plates from a bloody and mucous stool yielded ten suspicious colonies, but none proved to be *bacillus dysentericus*.

On eighth day first positive Widal was obtained.

Case 20. S. M.—Age 10, July 26, 1904, Ward B. Female. First day, five stools, mucus, with little blood, temperature 102.2° ; second day only two stools noted, temperature 102.4° . After this no record of stools, but temperature gradually fell to normal by sixth day.

Origin: Wholly unknown. No probable contact with case No. 26 and 27.

On day of onset twelve plates from a mucous and bloody stool yielded twenty suspicious colonies, some of which proved to be *bacillus dysentericus*.

Positive Widal on fourth and seventh days.

Case 26. P. W.—Age 28, July 27, 1904, Ward E 2, Male. First day temperature 102.6° . No record of stools; second day temperature 102° ; third day, no blood in stool, temperature 101.6° , thence gradual fall to normal by eighth day.

Origin: Unknown.

From suspensions made third day and kept on ice twelve plates were made several days later, and twelve on the thirteenth day which proved negative.

Positive Widal on sixth day and after.

Case 31. P. K.—Age 10, July 29, 1904, Ward E, Male.

First day seven stools, character unknown, temperature 101.6° ; second day, seven stools, temperature 100.2° ; third day temperature 99° , six stools, then five daily for four days while temperature continued 99° and 99.8° , thence normal.

Origin: Wholly unknown.

On first day of disease suspensions were made from characteristic stool, and kept in cold storage until the

following day when nine plates were made, from which sixty colonies were picked but only five responded to all tests of *Shigella dysenteriae*.

On third day *Widal* was positive, but negative five days later, and again positive two days later.

Case 31. Mrs. L. B.—Age 36, August 3, 1905, Ward L. Female. First and subsequent days no record of temperature or stools, save stool examined on first day contained much mucus and a little blood.

Origin: No probable contact with cases No. 19 and No. 28, otherwise unknown.

On day of onset twenty-four plates made from a characteristic stool gave negative results.

On seventh day a pseudo-*Widal* reaction was obtained.

Case 32. D. L.—Age 28, Aug. 11, 1904, Ward D. Female. First day five stools, bloody and mucous, temperature 100°; second day fourteen stools, bloody and mucous, temperature 100°; third day twelve stools, little blood, temperature 100.4°; fourth day eight stools, no blood, but mucus, temperature 99.4°, thence normal.

Origin: No probable contact with cases No. 19, 28 and 32; otherwise unknown.

On second day of disease twelve plates from a mucous stool yielded twenty-five colonies, two of which qualified as Harris type of the dysentery organism.

No positive *Widals* were obtained.

Eight of the nine wards in this building presented cases, the greatest number being four on Ward D., each of which occurred from eight to twenty days apart. In two wards the cases all appeared within two and three days of each other. The only probable source of infection by contact occurred between cases 21 and 22, the other cases occurring in patients who slept in different parts of the wards and who were not associated with each other. Of the eighteen cases only three occurred on the same day, which was following July fourth, when all the patients indulged in peanuts and lemonade.

Main Cottage.

Case 34. G. K.—Age 38, July 5, 1904, Ward South.

First day complaining of diarrhea; second day P. M. four stools, bloody and mucous, temperature 99° ; thence temperature for ensuing five days reached 101° and stools gradually decreased (5.3-2.3.3) and became normal with temperature on sixth day.

Origin: Unknown, unless indiscretion of diet on July fourth.

On second day of disease ten plates from a mucous and bloody stool presented twenty five suspicious colonies of which several proved to be the Harris type of dysentery bacillus.

Widals were negative beginning on third day of disease.

Case 35. P. L.—Age 40, July 5, 1904, Ward North. First day no observations made and patient absent, but did not work; second day, temperature 101° , no observation of number of stools, though they contained only mucus and blood; third day twenty similar stools, temperature 100° ; fourth day, eleven stools, temperature 100° ; fifth day, twelve stools, temperature 100.6° ; sixth day, seven stools, temperature 99.6° , thence stools normal by eleventh day, but temperature normal by ninth.

Origin: Ate six oranges July Fourth, and probably peanuts and lemonade.

On second day of disease ten plates were made from a bloody and mucous stool from which thirty colonies were picked; of these about half proved to be the acid type of bacillus dysentericus.

On the third and seventh days Widal reaction was suspicious, but all others were negative.

Case 36. O. S.—Age 40, July 6, 1904, Ward South. First day, many stools with mucus and blood, temperature 102° ; second day, three stools of same character, temperature 99.6° ; third day, two stools, temperature 99.6° ; thence temperature and stools not normal until

seventh day, there being blood and mucus on sixth day.
Origin: Wholly unknown.

On first and fifth days of disease plates were made from bloody and mucous stools with negative results. In all forty-two plates from which seventy colonies were picked.

Widals were negative until almost a month after onset when on August third, a positive reaction with McG. No. 25 was obtained, but negative to Harris, Shiga and Clements.

Case 37. J. P.—Age 56, July 8, 1904, Ward South.

First day, four stools, temperature 99.2° little mucus, no blood; second day, seven stools, mucus, temperature 99.6°; third day, four similar stools, temperature 99.6°; fourth day, five similar stools, temperature 99°; thence stools and temperature normal.

Origin: Unknown; had been constipated and complained of headache for one week.

On first day of disease nine plates from a mucous stool gave only twenty suspicious colonies which failed to qualify as *bacillus dysentericus*.

Several Widals at intervals of several days were negative.

Case 38. P. G.—Age 37, July 8, 1904. Ward South.

First day, seven stools, wholly blood and mucus, temperature 99.6°; second day, twelve stools, similar, temperature 99.4°; third day, six stools, similar, temperature 98.8°; fourth day, four similar stools, temperature 98.8°; fifth day no stools, temperature 98.8°; sixth day, three stools, no temperature.

Origin: Unknown.

On first day of disease ten plates from a bloody and mucous stool resulted in twenty suspicious colonies, two of which proved to be the arid type of *bacillus dysentericus*.

On the first and second day Widals were negative, but on the eighth day positive to McG. No. 25 and later to Harris and Shiga.

Case 39. C. C.—Age 34, July 17, 1904, Ward North. First day twenty stools, mucus, but with no blood, no temperature; second day, nine stools, mucus, no temperature; third day, five stools.

Origin: Wholly unknown.

On the second day twelve plates from a stool of mucus and fecal material presented but ten suspicious colonies, which did not qualify as *facillus dysentericus*.

First positive Widal was obtained seventeen days after onset with Clement's bacilli.

Case 40. J. D.—Age 28, Aug. 9, 1904, Ward North. First day five stools, much mucus with little blood, temperature 100.6°. No further observations made.

Origin: Unknown.

On first day of disease twelve plates from a characteristic stool yielded thirty suspicious colonies, but none proved to be *facillus dysentericus*.

Positive Widal obtained on second day, later ones were negative.

In this building the most significant fact is the occurrence of five of the seven cases within four days of each other, all following closely the indiscretions of diet of July fourth.

There was no probable contagion from case to case in any of the cases.

Annex.

Case 41. L. B.—Age 24, July 11, 1904, Ward 3. First day, twenty-four stools, mostly mucus, with some blood, temperature 99°; second day, seventeen stools, no temperature; third day, seven stools, no temperature; fourth day, eight stools, no temperature; fifth day five stools, thence normal.

Origin: Wholly unknown.

On the second day of disease twenty-four plates from characteristic stool resulted in fifty suspicious colonies of which several qualified as *facillus dysentericus*.

Blood was negative to Widal reaction.

Case 42. J. H.—Age 2, July 12, 1904, Ward 2. First day twelve stools, with much mucus, very little blood, no temperature; second day, nine similar stools, no temperature; third day, four stools without blood, no temperature; fourth day three stools without blood, thence temperature normal. On eighth day, twelve stools; ninth day and tenth day, four stools, the character of which was unknown.

Origin: Following much lemonade and many peaches July fourth, had diarrhea, lasting several days. After interval of two days present attack appeared without other known cause. No probable contact with case No. 41.

On second and third day of disease thirty-eight plates were made from a stool consisting largely of mucus. Thirty suspicious colonies proved positive, being of the Harris type.

On ninth day Widal was suspicious with Harris and Clements bacilli.

Case 43. R. K.—Age 25, July 15, 1904, Ward 1. First day nine stools, bloody and mucous, no temperature; second day, ten stools, same, no temperature; third day nine stools, same, no temperature, thence normal.

Origin: Wholly unknown.

On first day of disease twelve plates made from a mucous and bloody stool gave many suspicious colonies but negative results.

Clinical Widal was never more than suspicious.

Case 44. E. K.—Age 23, July 17, 1904, Ward 2. First day, seven stools, only mucus, no temperature; second day, four stools, much mucus and little blood, no temperature; third day, three stools, thence normal.

Origin: Unknown, no probable contact with case No. 43, though ate next him at table.

Twelve plates made on second day from a characteristic stool yielded eighty suspicious colonies, which proved negative.

On second day Widal negative, but positive on eighth in dil. 1:100 MeG. No. 25 bacilli.

Case 45. J. D.—Age 29, July 23, 1904, Ward 3. First day, character and number of stools not observed, and no temperature taken; second day, six stools, much mucus, no blood, temperature 102.8° ; third day, three stools, mucus only, thence normal.

Origin: Wholly unknown, no probable contact with other cases, though sat next case No. 42 at table.

At onset of disease, twelve plates from a stool containing much mucus yielded but fifteen suspicious colonies, but bacillus dysentericus was not isolated.

On third day Widal negative, but on eleventh day was positive with Harris and Clements, but only suspicious with Shiga.

Case 46. H. C.—Age 34, July 27, 1904, Ward 2. First day six stools, character unobserved and no temperature taken; second day, four stools, little mucus, temperature 102.4° ; third day, six stools, temperature 100° ; fourth day, five stools, no temperature; fifth day, five stools, no temperature, thence normal.

Origin: Unknown, no probable contact with other cases.

On second day of disease suspensions made from a mucous stool were kept in cold storage for two days then twelve plates made yielding fifty-five suspicious, but no positive colonies. On sixth day second series of plates were made with similar results.

Widal positive on sixth day and after.

Case 47. C. J.—Age 35, Aug. 12, Ward 1. First day five mucous and bloody stools, temperature 101° ; second day, one similar stool, temperature 100.2° ; third day, no stools, temperature 99.4° , thence temperature normal. Patient at no time confined to bed.

Origin: No probable contact with other cases.

On second day of disease twelve plates from a characteristic stool presented thirty colonies which later proved negative.

On the seventh day first positive Widal was obtained.

In this building, though the percentage of cases is higher than in any other building, namely, 18.4 per cent, there is no special etiological factor and no evidence of contagion by contact. In a single case the attack may have been secondary to the indiscretions of July fourth.

Central Hospital.

(Women.)

Case 48. E. M.—Age 17, July 8, 1904, Ward 8. First day, twelve stools, mucous and bloody, temperature 100.8°; second day, two stools, the same, temperature 99.4°, thence normal.

Origin: Overate of peanuts and lemonade July fourth; vomited and sick two days. After an interval of one and one-half days onset of dysentery. Otherwise origin unknown.

Ten plates made on first day of disease, suspensions in ice fourteen or fifteen hours, negative, but on the next day ten plates from a perfectly fresh characteristic stool resulted in isolation of five colonies of acid type of bacillus dysentericus.

Widal of first day was positive to Harris, Hunt, Clement and McG. No. 25.

Case 49. D. A.—Age 82, July 16, 1904, Ward 8. From July twelfth diarrhea and on fourth day seven stools, one of which being bloody, rest being mucous, temperature 99°; next day six stools, mucous, no temperature; thence for four days, five, four, three and two, mucous stools; thence normal.

Origin: Often has diarrhea of few days' duration; this attack followed ingestion of single dish of thimble berries. No probable contact with case No. 48.

On first day of disease, from a scanty stool of bloody mucus, fifteen plates were made and sixty colonies were picked with negative results.

Third day of disease Widal negative, but a couple of weeks later was positive, 1:100 with Harris & McG. No. 25.

Case 50. A. B.—Age 68, July 16, 1904, Ward 6. First day, fifteen stools, mucous and bloody, temperature 103° ; second day very many similar stools, temperature unknown; third day 3 stools, no blood, temperature unknown; fourth day, five stools, mucous and bloody, much pain, temperature subnormal; fifth day two stools, with little mucous; thence normal.

Origin: Absolutely unknown.

On second day of disease, twelve plates from a mucous and fecal stool yielded forty suspicious colonies which, however, failed to qualify as bacillus dysentericus.

Widal negative until two weeks after onset.

Case 51. G. C.—Age 55, July 24, 1904, Ward 6. First day, three stools, character bloody and mucous, no temperature; second day, six stools, as above; third day, five stools more blood than previously; temperature 99° ; fourth day few stools, no blood and patient at work.

Origin: Unknown, but six days previous, following hearty meal of corned beef and cabbage, had cramps and diarrhea. No probable contact with case No. 50.

On seventh day of disease, twelve plates from a characteristic stool presented fifty suspicious colonies, which later proved negative.

On ninth day Widal negative, but two weeks later positive in dil. 1:100.

Case 52. E. H.—Age 40, July 23, 1904, Ward 4. First day, about two stools, character not observed, temperature 101.4° ; second day, two stools, temperature 100.4° ; third day, two stools, bloody and mucous, temperature 102.4° ; fourth day, two stools, character not known, temperature 99° , thence normal.

Origin: Absolutely unknown.

On second day of disease twelve plates from a characteristic stool gave thirty suspicious colonies, and results were positive.

Widals positive on third day and thirteenth day.

Case 53. E. K.—Age 40, July 25, 1904, Ward 8. First day, stools bloody and mucous, nausea and vomiting

present, temperature 101° ; second day, four similar stools, but no blood, temperature 100° ; third day, two stools, (temperature 99° ; thence normal.

Origin: Wholly unknown; no probable contact with cases 49 and 50.

On day of onset, twelve plates from characteristic stool yielded twenty suspicious colonies, but negative results.

Widals were negative.

Case 54. M. S.—Age 39, July 31, 1904, Ward 3. First day, many stools, at first mucous, later bloody, temperature 102° ; second day, number of stools not taken, bloody and mucous, temperature 102° ; thence for two days mucous, and then normal.

Origin: Wholly unknown; preceded by constipation.

Characteristic stool passed the second day was not plated for two days (suspensions on ice). Twelve plates yielded sixty-five colonies, but negative results.

Widals were negative.

Case 55. C. C.—Age 53, Aug. 5, 1904, Ward 4. No record of any sort obtainable in this case, save specimens received in laboratory contained mucous and blood; duration five days.

Origin: Unknown, no probable contact with case No. 52.

Day of onset, twelve plates from a characteristic stool presented forty suspicious colonies, but negative results.

Widals were negative.

Case 56. J. R.—Age 72, Aug. 5, 1904, Ward 7. First day, diarrheal movements; second day, many stools with mucus and blood, temperature 101.3° ; record thence imperfect; mucous stools several days.

Origin: Wholly unknown, two severe attacks of dysentery six and four years previous.

On second day of disease, from a stool containing blood and feces, and small amount of mucus, bouillon suspensions were made and kept on ice until two days later,

when twelve plates were made yielding twenty suspicious colonies, which later proved negative.

On the eighth day the first positive Widal was obtained. One made fourteenth day gave only a pseudo-reaction.

Central Hospital.

(Mem.)

Case 57. J. J.—Age 32, July 15, 1904, Ward 6. First day, two stools, bloody and mucous, temperature 103° ; second day, eight stools, similar, temperature 102.2° ; third day, seven stools, similar, temperature 103.2° ; fourth day, nine stools, bloody and mucous, temperature 103° ; fifth day, five stools, mucous, temperature 104° ; sixth day, four mucous stools, temperature 100.8° ; seventh day, three mucous stools, temperature 101.6° ; thence normal.

Origin: Wholly unknown.

On first day of disease, fifteen plates from a characteristic stool presented fifty suspicious colonies of which twenty proved to be Harris type of *Bacillus dysentericus*.

Widals were negative on several successive days.

Case 58. W. H.—Age 67, July 24, 1904, Ward 2. First day, many stools, much blood, little mucus and much feces, temperature febrile, no further observations made on the case.

Origin: Wholly unknown.

At onset of disease, twelve plates made from a stool containing hard feces, mucus and clotted blood, with positive results, the organism being of the Harris type.

On second day positive typhoid Widal dil. 1:50, but no positive dysentery reactions.

Case 59. W. G.—Age 35, July 27, 1904, Ward 5. First day, twenty stools, mostly mucous, with some blood, temperature not taken and no further observations recorded.

First day of disease, twelve plates from a mucous stool

presented twenty suspicious colonies, but results were negative.

On sixteenth day a second series of twelve plates were made with similar results.

Widals positive second day and after.

Case 60. J. D.—Age 26, July 28, 1904, Ward 8. First day, ten stools, little blood and mucus, temperature 100° ; second day, ten stools, similar, temperature 101° ; third day, ten stools, similar, temperature 99° ; thence stools and temperature normal.

Origin: Wholly unknown.

From a stool (mucus and blood) passed the second day of disease, and kept in cold storage for two and twelve days, two sets of plates, twelve each, were made, yielding 110 suspicious colonies, but negative results.

First positive Widals obtained the seventh day.

Case 61. P. R.—Age 34, Aug. 1, 1904, Ward 4. First day, fifteen and twenty stools with much blood and mucus, accompanied by considerable vomiting; second, third, fourth days, similar stools; temperature not being taken; vomiting continued at infrequent intervals; fifth to tenth days, number of stools gradually diminished, mucus and blood disappearing; thence normal.

Origin: Worked in dining room; otherwise unknown.

On day of onset, twelve plates from a mucous and bloody stool presented twenty-five suspicious colonies, but negative results.

No positive Widals were obtained.

Case 62. J. B.—Age 34, Aug. 8, 1904, Ward 5. First day, many bloody and mucous stools, temperature not taken; second day, thirty-three stools, similar, temperature 102.8° ; third day, twenty-nine stools, similar, temperature 101.6° ; fourth day, twenty-two stools, similar, temperature 101.4° ; fifth day, sixteen stools, not bloody, temperature 99° ; sixth day, sixteen stools, mucous, temperature 99.8° ; seventh day, nine stools, mucous, temperature normal; thence stools and temperature normal.

Origin: Wholly unknown. No probable contact with case No. 59.

First day of disease, twelve plates from a mucous and bloody stool presented ten suspicious colonies, which proved negative.

On thirteenth day a pseudo-Widal was obtained.

Case 63. J. M.—Age 57, Aug. 11, 1904, Ward 8. First day, three stools, diarrheal, no temperature; second day, three stools, diarrheal, no temperature; third day, four stools, bloody and mucous, temperature 101.4°; fourth day, six stools, similar, temperature 100°; fifth day, four stools, mucous, but with very little blood, temperature normal; sixth day, normal.

Origin: Wholly unknown, save possibly green corn.

Case 64. H. S.—Age 58, Aug. 13, 1904, Ward 2. First day, four stools, diarrheal, temperature not taken; second day, five stools, bloody and mucous, temperature 102.6°; third day, four stools, very little blood and mucus, temperature 100°; fourth day, three stools, no blood, very little mucus, temperature, 99°; fifth day, five stools, diarrheal, no temperature.

Origin: Apple eaten evening previous; otherwise unknown. No probable contact with case 58.

In this building on the female side only five of the ten wards presented cases, but in none of these wards did the cases occur within a few days of each other. Also here we failed to detect any evidence of spread of the disease by infection. On the male side two cases each occurred on three wards, but none of the cases approximated each other closely in the time of their appearance. Only five of the eight wards presented cases.

South Hospital.

Case 65. M. C.—Age 78, July 9, 1904, Ward T. First day, eleven bloody, mucous stools, temperature 99°; second day, eleven stools, similar, temperature 101° at night, morning subnormal; third day, seven stools, tem-

perature 100°; fourth day, temperature subnormal, thence normal.

Origin: No special etiology; three days previous temperature 102°, three bloody, watery stools, then constipated two days.

On second and sixth days twenty plates, (10 each made from stool containing little mucus, but much fecal material. Seventy colonies were picked with negative results.

Widal on seventh day was negative to Mr. G., but positive to typhoid.

Case 66. M. A. R.—Age 77, July 22, Ward T. First day, temperature 100°, ordinary diarrhea, eleven stools; second day, same, but with some mucus; third day, twelve stools, mucus, no blood, temperature 100°; fourth day, fourteen stools, mucus, no blood, temperature 100.6°; fifth day, eleven stools, temperature 99.6°; sixth day, thirteen stools, still only mucus; seventh day, fourteen stools, bloody and mucous, temperature subnormal; thence temperature subnormal to death on the tenth day, stools continuing very frequent and mucous; eighth day fifteen stools; ninth day sixteen, tenth day seven stools.

Origin: Unknown.

On third day of disease, twelve plates from a mucous and bloody stool yielded thirty-five suspicious colonies, but no bacillus dysentericus.

On fourth day Widal positive.

Case 67. J. C.—Age 43, Aug. 3, 1911, Ward Y. First day, six stools, much blood and mucus, temperature 100°; second and subsequent days for two weeks, many bloody and mucous stools, temperature not much above normal. Sick three weeks.

Origin: Wholly unknown.

On day of onset twelve plates from a characteristic stool gave negative results.

No positive Widal's were obtained.

In this building only two of the ten wards presented cases. The two cases on Ward T occurred among 1177

old and feeble women, but with this exception no etiological factor could be determined.

Case 88. C. J. F.—Age 83, July 29, 1904, Ward Hubbard Cottage. First day, fourteen stools, with much mucus and some blood; temperature 102.6°; second day, five stools, similar, temperature 102.6°; much griping; third day, six stools, similar, temperature 99.2°; fourth day, five stools, mucus, no blood, temperature normal; thence stools normal, followed by prolonged prostration.

Origin: Ate few green apples; worked in laboratory cleaning test tubes, (including dysenteric media) seven days before onset, working in toto four days.

From a mucus and fecal stool twelve plates made third day of disease from cold storage suspensions of the first day yielded fifty suspicious colonies, but negative results.

Positive Widal on third and fourth days.

It will be noted that in some of the buildings—Main Cottage, Annex and North—the majority of the cases occurred within short periods of time; in the North Hospital ten of the eighteen cases occurred within four days, while six of the remaining cases occurred during the month of June when there were no other cases elsewhere in the hospital buildings; at the Main Cottage five of the seven cases occurred within three days, and at the Annex four of the seven occurred within six days. In the Central Hospital six of the eleven cases occurred during August. While these figures are suggestive of local etiological factors in these buildings, a careful examination of every detail in relation to food and other sources of contamination fails to bring to light any important facts.

Twenty-nine of the sixty-eight cases occurred within nine days, (July 29-29.) The meteorological conditions during this period present nothing striking. The daily mean temperature as well as the range of temperature does not vary much from that occurring during the rest of the month. The temperature on two days fell 31

and 28 degrees, respectively but the number of cases appearing on the days following did not increase.

As regards the importance of contagion, direct and indirect, it can be positively stated that strict antiseptic precautions were observed in nursing all cases. This probably accounts for the absence of any evidence of contagion in our cases, and their relative isolation. There was but a single case (No. 25) in which infection by contact might have occurred. In our epidemic of the summer of 1903, when the antiseptic precautions were faultily observed, our experience in this matter was quite different, as then a majority of the cases might have resulted from contact, direct or indirect. In reference to the existence of previous attacks of dysentery, we find that five of the sixty-eight cases had had previous attacks within recent years, a considerably larger proportion than that observed last year. Relative to infection from outside sources, two bacteriological examinations of the water supply gave negative results. The milk supply for our entire population came from our own stable and was furnished alike to the buildings and cottages in which many, few and no cases appeared. There was but one case in which the dysentery followed the ingestion of food and fruit brought by friends of the patients; on the other hand eight cases appeared immediately after the usual diet of July fourth—peanuts (1 case) and lemonade, and four cases appeared after eating green apples. Also one case followed ingestion of thimble berries, making a total of fourteen cases, in which unusual articles of diet appear to have been the most important etiological factor.

Furthermore, it was found that on the fifteen days following the serving of green vegetables, peas, beets, cucumbers, lettuce, cabbage and string beans, in July there appeared thirty four cases of dysentery, averaging 2.3 cases per day; while on the sixteen days following the days when no green vegetables were served only seventeen cases appeared. It therefore appears that at least

twice as many cases appeared on days following the ingestion of green vegetables than on days following a vegetable free diet. Yet during the month of June when radishes, spinach or rare ribs were served, ten times and 45, 252 heads of lettuce were distributed to the various kitchens, only five cases of dysentery appeared and none of these on days immediately following the serving of green vegetables, except lettuce of which we have no record. Relative to the age of our patients we find that forty-seven or sixty-nine per cent. of cases occurred under fifty years of age; indeed over fifty occurred under forty years of age, in contrast to the epidemic of last year when over fifty per cent. occurred in cases over fifty years of age. Only a very few cases appeared in the very aged and feeble. However, our only death occurred in an old and debilitated patient.

Bacteriology.

Following the line of investigation adopted the previous summer, Mr. H. C. Ward examined the stools of all cases of dysentery using practically the same technic as before (See Report of State Board of Health, Conn.), and the serum of every patient was tested by Dr. J. M. Morrison or Mr. F. M. Mender with the Harris, Shiga and Mott organism (the latter isolated in the early part of the work).

Some idea of the groups of dysentery bacilli or as Dr. Park (1) suggests calling them para-dysentery was isolated in each of nineteen cases: 28.7 per cent. out of 66 examined. This small percentage may be explained by the following unfavorable conditions: The most important being a lack of media, tubes, etc., due to the delay in installing an autoclave which necessitated the use of interrupted sterilization (Arnold sterilizer), so in many cases bouillon suspensions made, when stool was received had to be kept on ice for one, two or three days before plating media could be prepared. For the same reason few colonies could be picked from the plates.

Forty-five of the sixty-six stools examined were char-

arterial dysenteric stools, the bacillus dysentericus being recovered from seventeen or 37.7 per cent, while twenty-three stools containing only mucus and feces yielded positive results in but two instances 8.7 per cent. Of the nineteen cases from which the organism was isolated, ten manifested mild symptoms with brief course, while nine were of a more severe type running from five to eleven days with higher temperature and more frequent stools.

Of the forty-nine cases from which we failed to isolate the organism but nine were very severe, (one death without autopsy) while forty were clinically mild in character.

The bacilli isolated in fifteen cases were of the typical acid fermenting type (Flexner-Manila, (Harris.)

In two of these cases we found, in addition, several colonies, which were identical in morphology, in their action on the more common media (mannite, dextrose, dextrin, galactose, saccharose and inulin) and in agglutination reaction, agglutinating with Harris serum (1:5000) and Shiga (1:500) but differing in reaction on litmus milk. The usual initial slight acidity was produced on litmus milk with a gradual return in several days to the original color. The blue color remained for several days when a secondary acid reaction without coagulation was observed which remained permanent as did Dural's cultures (2). These organisms were agglutinated by typhoid serum in dilution of 1:50. In these cases only two colonies each presented this property while many colonies of the Flexner-Manila type were isolated. The clinical picture in these two cases did not differ from the others. One ran a rather mild course while the other was more severe with a temperature of 103.8°, vomiting and many bloody stools.

In four of the other positive cases there were many colonies isolated with peculiar action on mannite. Unfortunately these bacilli were discarded by an assistant before they were tested on the special sugars, or any

cross-agglutinations were made. In morphology, action on the usual culture media and in their agglutination reactions (Harris serum 1:2000, Shiga 1:500) they were identical with the Flexner-Mannix type but after standing on mannite for a couple of weeks, the initial acidity shown by the lilac color gradually changed to a much deeper blue than the original shade. This color persisted for a month or more when the observations were discontinued. Undoubtedly these organisms were simply a variation from the commoner type of the bacillus dysentericus and ought to be classed with the paradyentery group.

None of the organisms isolated produced indol. The agglutination and cross-agglutinations of the bacilli isolated are given in the following table with the exception of the four cases in which bacilli were discarded on account of the terminal alkalinity on mannite before this work was completed.

TABLE No. I
SERUM OF PATIENTS FROM WHOM DYSENTERY BACILLI
WERE ISOLATED

[illegible]

In this table only a few representative cultures were used.

There were 765 recorded cross-agglutinative reactions not counting those made in the identification of the organism: 388 were positive, 6 pseudo-reactions, while 371 were negative.

It is to be noted that the blood-serum in any case from which an organism had been isolated gives the same reaction to practically all of the organisms isolated in any other case; instance the serum of Roach gave a positive reaction with all the colonies isolated in the cases of Johnson, Mahoney, Indorf, etc., while the serum of Knickerbocker gave a negative reaction in practically all of the groups isolated from Johnson, Indorf, etc.

The sera of some of these cases were apparently rich in common agglutinins, for instance McGarrity, Roach, Indorf, Johnson and Anderson sera agglutinated most of the bacilli tested, while the sera of others, as Cusbell and Knickerbocker possessed only specific agglutinins, clumping only two colonies besides their own. The sera in two cases, namely, Gibbs and Baxter failed even to clump their own bacteria; but each serum agglutinated organisms from two other cases. One case, Baxter, gave a pseudo-reaction to his own organisms, but clumped those from three other cases. These cross-agglutinations were not made until a month or six weeks after the patients had entirely recovered.

The agglutinations (clinical) of the serum of the dysentery cases with the Harris, Shiga, and McG., (isolated in the early summer from one of our cases) give widely varying results for the different days of the disease.

TABLE No. II.

SHOWING RESULTS OF WIDALS WITH SERUM FROM FIFTY-
 FIVE CASES ON DIFFERENT DAYS OF DISEASE, WITH
 THE HARRIS, SHIGA AND MCGARRITY BACILLI
 (ISOLATED FROM THE EPIDEMIC).

Day of Disease	No. Widsals	% Pos	% Pseudo	% Neg.
1	9	11.	0.	88.9
2	25	28.	16. $\frac{1}{2}$	56.
3	24	26.8	12.5	60.7
4	18	39.	11.1	49.9
5	15	29.	0.	80.
6	15	31.6	13.3	55.1
7	12	41.6	16.6	41.8
8	17	41.2	17.6	41.2
9	21	47.6	4.7	47.7
10	9	55.5	11.1	33.4
11	12	91.6	0.	8.4
12	6	83.3	0.	16.7
13	5	40.	40.	20.
14	4	100.	0.	0.
15	5	20.	40.	40.
16	5	40.	20.	40.
17	3	66.6	0.	33.4
18	3	33.	0.	66.7
19	4	75.	0.	25.
20	3	33.4	66.6	0.
21	3	100.	0.	0.
22	2	50.	0.	50.
23	1	100.	0.	0.
24	3	33.3	33.3	33.4
25	2	50.	0.	50.
26	1	100.	0.	0.
27	2	100.	0.	0.
28	3	66.6	33.4	0.
29	4	50.	0.	50.
30	5	40.	20.	40.
31	7	43.	0.	47.
And Later.				
Total Number,	249	40.5 %	11.2 %	47.9 %

The technique of the Widal reactions was the same generally used by us for typhoid i.e., from a twenty-four hour old agar slant, bacillen was inoculated, kept at room temperature and used eighteen to twenty hours later. The hanging drops were prepared in the usual way and examined at the end of two hours under the microscope.

From our work on Widal reactions in the summer of 1903 we had hoped to establish some value to the agglutination reaction as a diagnostic factor, but our results in 1904 have failed to attach any significance to this reaction as can be easily seen by reference to the table. Forty-six and six-tenths per cent. was the highest number of reactions obtained in the first week. Six of the cases from which the bacilli were isolated failed to give the reaction although their serum was frequently tested with the Shiga, Harris and McG. bacilli.

Conclusions:

The sixty-eight cases of dysentery were scattered uniformly throughout the central group of buildings, infected from 7 to 4.4 per cent. of the population of the respective buildings, except in one instance 18.4 per cent.

The existence of the disease should be regarded as distinctly epidemic.

In contradistinction to the existence of the disease in the summer of 1903, there was practically no evidence of spreading by contagion.

The important etiological factors outside of the presence of the bacillus dysentericus appeared to be: (a) the ingestion of green vegetables; (b) of green fruits, and (c) unusual diet of July fourth.

The disease was uniformly mild in severity and there was but one death.

The majority of cases occurred in patients under forty years of age.

An appreciable percentage (seven) had suffered from recent previous attacks.

The Shiga type of dysentery bacillus was never recovered by us in this or the investigation of the previous summer.

The Flexner-Manila type was recovered in fifteen cases.

Associated with the Flexner-Manila type in two cases a new type of para-dysentery bacilli was isolated, identical with those discovered by Duval (1904).

In four cases many colonies were isolated which differed from the Flexner-Manila type in producing a terminal alkalinity on mannite.

No indol was produced by any of these organisms.

This investigation has failed to attach any clinical value to the agglutination reaction.

References:

- (1) *Journal of Medical Research*, Vol. XI.
- (2) *Journal American Medical Association*, Aug. 6, 1905.

ALCOHOL AS A REMEDY IN DISEASE.

T. D. CROTHERS, M.D.,

WASH. D. C.

All physicians who graduated from twenty to thirty years ago inquire with more than usual interest how far modern science has confirmed or disapproved the value of alcohol as a remedy. The recent graduates hear very little about alcohol in disease in the lecture room; hence the question has less interest to them.

Thirty years ago, and even down to more recent times, all the leading authorities classed alcohol among the most valuable of stimulants and tonics and supported their claims by many exhaustive studies until it appeared that its therapeutic power was established beyond question. At present all this teaching and literature is passing away and is not sustained or supported by modern research. Physicians who use spirits to-day in fevers and respiratory diseases and combine it as a tonic in all forms of exhaustion and debility fail to get the same results which were claimed by the earlier medical authorities. Many years ago a well-known physician reported the free use of alcohol in an epidemic of diphtheria and congratulated himself on the low mortality which was due to this drug. Last year this same physician reported a large number of similar cases treated without spirits and the difference in mortality was over fifteen per cent. less.

The moralists have urged for over a century that alcohol was dangerous both as a medicine and beverage. The physicians have assumed that this was true only in a narrow sense, and that its good effects as a remedy in disease, exceeded that of its dangers as a beverage. The physiologist who sought to determine its effects on vital-

ity and its stimulating property, giving new force to the organism, found the most divergent results. These were explained as due to the quantity and quality of alcohol used. In small doses it was claimed to be a tonic and stimulant, while in larger doses it depressed and lowered vitality. This theory is believed by many clinicians up to the present, although modern research has failed to confirm it, but has indicated the action of alcohol to be that of an anesthetic and narcotic.

During the last ten years experiments in the laboratory and hospital ward of the effects of alcohol on the organism has produced such a variety of negative opinions that it is very evident that the subject is still not clearly understood.

A few years ago Prof. Krapelin of Heidelberg, undertook to measure the physiological action of alcohol on the senses and the functional activities of the body. He concluded from many thousand experiments and measurements with instruments of precision on the body, both before and after spirits were used, that alcohols in any forms were anesthetics and narcotics. This opened up a new realm of investigation and explained many of the phenomena more fully than ever before.

The studies of Atwater attracted much attention at the time, but his result was finally found to be only a new statement of an old theory which while containing some truth, was doubtful and misleading. His own statement at the last expressed this clearly that while alcohol might be food, it was a very dangerous one and should not be used for this purpose.

The studies of Krapelin showing the depressing action of spirits and its narcotic properties to cover up pain and discomfort fully confirmed the work of Richardson and others who a few years ago announced that alcohol must be considered a narcotic and any medicinal action it had was entirely due to this power. From this point of view, some very interesting questions of the action of alcohol

as a drug have been raised and are still the subject of discussion.

The clinical resources of the older physicians, with the good results, are now explained by the modern physician as due to this anæsthetic and narcotic action. This kind of medication, like that from the use of opium, covers up the symptoms of pain and discomfort at the peril of injury to the metabolism and vitality of the body.

Some very interesting studies have been made by clinical comparisons of large numbers of cases treated with and without spirits for the purpose of showing results as a therapeutic agent.

The late Dr. N. S. Davis of Chicago, pointed out a very significant connection between the mortality and the amount of spirits consumed in eighteen different hospitals in this country. From his tables in every instance it appeared that where the amount of alcohol used per capita was large, the mortality was increased. Thus a high mortality seemed to follow a larger amount of spirits consumed and a low death-rate when it was diminished. The London Temperance Hospital, established for over twenty-five years and receiving the same class of patients as other London hospitals, has not used any alcohol in the treatment of its patients for this period and the mortality has been from nine to ten per cent. lower than that of any other hospital in that city.

Within the last few years alcohol has become less and less popular as a drug in public hospitals and whenever used, has been chiefly for external applications, as a refrigerant in fevers. Formerly, alcohol was thought to be very useful as a tonic for worn-out elderly persons but this theory is rapidly passing away. Nearly all the old people's homes and hospitals for the aged have abandoned all forms of alcohol as a tonic. While medical literature still contains references to its value as a drug, it is advised very timidly, and with so many qualifications as to leave much doubt concerning its real value.

It seems to be a settled conviction that alcohol used medicinally or as a beverage is depressive and lowers vitality, lessening the oxygen-carrying properties of the blood corpuscles and increasing the waste of the system. Several authorities urge with great positiveness that the use of alcohol favors the growth of toxins and bacterial products in the body by its disturbing action on nutrition. These and other general facts are recognized as true, but the question in dispute is, do they occur as effects from large or small doses of spirits both in health and in disease, or are they peculiar to certain constitutions following the excessive use of spirits? A few years ago the French Academy of Medicine through its committee made an exhaustive report on the action of different alcohols in the body showing a wide variation in effects and peculiar toxic properties. They showed that alcohol from different substances had different results and peculiar toxic properties on different parts of the body. This report suggested the idea that many of the unusual effects were due to adulterations, particularly where alcohol was made from various substances, also that the common adulterations such as water and isater substances were perfectly harmless and that the real injury came from alcohols distilled from different substances and the chemical changes which these combinations produced principally the ethers, were the sources of the real dangers.

Recently, these facts have been strongly confirmed by researches and studies of the effects of wood alcohol. Within the last few years the manufacture and consumption of this form of alcohol has attained enormous proportions, far beyond the legitimate demands in the arts and sciences. Its acidity and irritating qualities have been overcome to such an extent that in all probability, it is used in the place of other alcohols both as a beverage and drug. Its special properties seem to be on the sensory nerves particularly that of sight and some very

remarkable cases of blindness have been reported as due to this cause.

A recent teacher of therapeutics utters this caution: "Whenever you use alcohol in any form, be sure that it is not wood alcohol; for its effects are often more serious than the disease that you are trying to overcome by its use. Quite a large class of physicians continue to use alcohol as a stimulant and in cases where vitality is low, for the purpose of increasing the heart's action and particularly in collapse. This practice has been shown to be especially dangerous in many ways notably in the collapse cases found on the streets where spirits are given as heart stimulants. Should the collapse and the coma (seen in persons who fall down on the streets or in public places) be due to cerebral hemorrhage, the action of spirits on the heart causing a sudden flow of the blood through the arteries, increases the hemorrhage and is practically making fatal a condition that might have been overcome otherwise.

Where the coma comes from the presence of toxins and pressure from congestion on certain brain centers, the action of alcohol increases the toxins and sends them with greater rapidity over large brain areas producing graver results. In the last stages of fever or profound exhaustion, the attempt to keep up the heart's action by spirits is simply putting large drafts on the vital resources with increased collapse and more certain death.

The question is a very serious one and the physician should be prepared to settle it according to the conditions present, always recognizing the depressive and narcotic action which is sure to follow from its use.

A very practical measure has been adopted in many of the hospitals in Europe and this country of using pure ethyl alcohol diluted with water to suit the particular purpose. There can be no question but that the use of crude unknown forms of alcohols in brandies, whiskies, and wines of different kinds, is exceedingly uncertain and

dangerous. If alcohol is to be used in any way, buy the spirits, then reduce it with water.

Probably the cheap California wines on the market contain the purest forms of alcohol together with acids and other products which may have some medicinal action. The older the wine, whisky and brandy, the more complex and dangerous are the spirits and alcohol present.

Forms of ethers, chloroform and derivatives of alcohol are the most valuable drugs known at this time to science. The chloral and other aldehyde preparations of alcohols are forms of spirits valuable for their anæsthetic and narcotic properties. The progress of chemical research in this direction is one of the most promising in all the field of therapeutics, but every step forward makes the fact more and more prominent that alcohol is an anæsthetic and narcotic, and should only be used as such, and never in the crude forms so common at present. Like ether and chloroform which are derivatives of alcohol, it is an exceedingly dangerous remedy and cannot be used indiscriminately. At present there are so many substitutes (of which water ranks very highly among the number) whose effects are far more exact, that alcohol should have little or no place as an indiscriminate remedy in our modern therapeutics.

One of the recent conclusions whose significance is confirmed by our daily experience, is that alcohol either taken as a drug or as a beverage has a cumulative action. The apparent good results are misleading and the invalid who has taken spirits in moderation or small doses for a long time with the belief that he is regaining health and vigor, is suddenly seized with acute inflammation of the lungs or kidneys which he attributes to some trivial cause. But in reality a sclerotic condition of the arteries is present combined with a feeble heart action which culminates in a fatal issue. The inference is very clear that the connection between the continuous anæsthetic and narcotic action of alcohol and the final collapse is far

more intimate than we realize. Our every day experience confirms this in a low vitality and feeble power of resistance noted in persons who use spirits either as a drug or medicine. The mortality of moderate or excessive users of spirits sustains this claim.

This cumulative action from spirits is shown by Krugelin to fall most heavily on the sensory activities diminishing their capacity, also on the heart and the sympathetic nervous system deranging the uniform distribution of nutrient material and the elimination of the waste.

This condition always provokes organic changes which become fixed and permanent and when constantly repeated in persons supposed to be healthy, is a very serious and positive degeneration. It will readily be seen that acute or chronic stages of acute disorders or diseases may be intensified and increased by the toxic action of alcohol, no matter how small the doses. Recently it is asserted that alcohol destroys the immunity and protective power to overcome disease processes. This statement is based on laboratory researches and experiments and is confirmed by many observers.

One of the serious questions which should be answered by every practical physician is this, "Are we using alcohol as a remedy and for what purpose, and on what physiological reasons do we expect to get results?" A few years ago, it was quite a common experience to note actual delirium tremens in the last stages of typhoid fever where alcohol had been given very freely on the supposition that it was sustaining life. I have seen two cases of pneumonia dying from alcoholic coma. In both alcohol was given very freely for several days before death. Up until a very recent period, alcohol was supposed to be indicated in all persons found on the street in the state of coma. The mortality was frightful and many postmortems showed extensive cerebral hemorrhages which, no doubt, were increased and made fatal by the action of alcohol upon the heart.

Cases of indiscriminate and reckless use of alcohol in collapse are still far too common. An instance in this city of a man feeling faint on the street; went into a drug store and was given a glass of spirits and shortly fell into a deep coma. The family physician was called and more spirits was given. Some even was injected under the skin. The post mortem revealed a large rupture of the artery and many small ones. The action of alcohol sending a greater flow of the blood to the brain with greater volume and intensity was undoubtedly the attributing cause of death.

One conclusion which cannot be mistaken is that alcohol is an exceedingly dangerous remedy and should not be used except with the utmost caution and care, also that there are many substitutes whose effects are equally certain and less dangerous.

It may be stated as a well authenticated fact that the action of alcohol is that of an anesthetic and narcotic; hence its medicinal use should be limited. Second, while it may seem to have some nutritive power by its oxidation, its deleterious effects on the metabolism of the liver and blood are so much more prominent, that its possible good becomes insignificant. Third, in all cases its specific effects on the vaso-motor nerves causing derangement of the cerebral circulation is a matter of peril which cannot be estimated. Fourth, its cumulative and degenerative effects on cell and tissue are becoming more and more prominent with each advance of scientific study. Finally the practical conclusion demands a new study of alcohol in the sick room, and a new examination of the facts and theories which have supported its use as a medicine.

SOME SUGGESTIONS ON THE MEDICAL TREATMENT OF GALL STONES.

EDWARD W. GOODENOUGH, B.A., M.D.,

STATIONERY

The surgery of the gall-bladder has made such rapid strides in the last decade, that it is easier and more popular to talk about gall-bladder operations than to consider the old threadbare methods of medical treatment. In the old methods, some of which are already cast aside by many, there is rich ore for those who care to dig. Empiricism is a large word and has been used as a bogie-man until we are ashamed to give a patient medicine without some more cogent reason than the foolish fact that we will get him well. Our old cholagogues do not increase the excretion of bile, therefore we drop all past clinical experience and give nothing in diseases of the gall-bladder unless it be more bile and wait for the water to move. I write this article because I find many physicians with a large clientele who use only symptomatic treatment for biliary colic and for the cholelithiasis or cholangitis no treatment at all. It is not my purpose to exhaust the possibilities of medical treatment in biliary colic and its sequelae, but only to state methods which in my own practice have relieved the immediate attacks and increased the interval between the acute exacerbations.

The disease we are considering is very prevalent in this country and in Europe. Naunyn says that perhaps every fourth elderly woman has gall-stones. Out of five thousand post-mortem examinations they were present in 5.9 per cent. of individuals dying between thirty and sixty and 15.2 per cent. of those over sixty years of age. A large number of these cases had never given symptoms of gall-bladder disease and diagnosis of

this condition was not made until after death. The X-ray has thus far proved disappointing as an element in diagnosis. Suppose with improved technique or with more thorough mastery of the sense of touch we could find all these cases and remove the stones by operation. Some surgeons say there is but one treatment for gall-stones, and that operative. We could have operations galore; our now over-crowded hospitals would need to be multiplied many times and we would need a special course on gall-bladder surgery in every medical school. It is generally stated that four per cent. of those who have gall-stones have acute symptoms. Some surgeons say the pain is caused by gall-stones, therefore let us operate at once and remove the cause—the stones. This is short sighted, to say the least. The removal of the stones or even of the gall bladder does not always remove even the pain; and sometimes leaves a condition just as disagreeable and more persistent than the previous infrequent attacks of biliary colic. But gall-stones often disappear under medical treatment without operation. Not only that, but many people live for years with a gall-sac full of pebbles and never give them a thought. There are no symptoms and in spite of the pathological condition present, the patient remains healthy to a good old age.

Our patients come to us for the relief of symptoms. Our first duty is to alleviate the pain or discomfort from which they are suffering. Our next duty is to find and remove the cause, in order if possible to prevent future attacks. Our first search then after the attack of pain is relieved, is not to find whether a cholecystotomy or cholecystectomy, or a cholecystenterostomy will be the safest and surest operation. It is to find what caused the stones to form or the duct to close in the individual case: to remove this etiological factor or these etiological factors as the case may be—and then if attacks continue or increase in frequency, and no relief can be obtained otherwise—let us thank those surgeons who

have simplified gall-bladder operations and allow those cases which need surgical intervention to pass through the cutting stage.

Mayo Robson has given us a valuable treatise on gall-stones. He is a brilliant expounder of gall-bladder surgery; but all surgeons are not Mayo Robsons. His lecture last year on the functions of the appendix shows clearly, that nature in providing for the human economy is not such a poor artist after all. Just as truly has the gall-sac with its mucous glands a part to fulfill in normal body life; and even were it but a bag for the storage of an excretion, it should never be removed until its possibility of functioning is entirely lost, and by reason of suppuration, peritoneal adhesions, or rupture, it has become a greater menace to life than the operation which would accomplish its removal. No man on the faculty of the Medical Department of Yale University is held by its graduates in higher esteem or affection than the Professor of Surgery, now our honored President. But all surgeons are not Carmalts.

Within a generation Dr. X., was professor of surgery in a western college so-called. His instruction to his students was: "In operating never mind your anatomy. Cut, and if you cut anything you ought not to, tie it." This eminent surgeon was sent for from far and near in difficult cases. At one time he had a record, couched for by an honest man, a record of thirty laparotomies with thirty deaths, a percentage rarely equalled and never excelled. The good man has gone to his reward but some of his descendants still remain.

It is true that the surgeon as well as the pathologist has greatly increased our knowledge of the diseased conditions surrounding the gall-bladder and its ducts. It is true that a stone in the common duct is most apt to lodge at its narrowest portion opposite the ampulla of Vater. It is further true that a serious injury to the pancreatic duct might be more harmful to life or to the comfort of living than a dozen operations of the com-

non duct or gall-bladder. It is further true that the longer we wait if operation is necessary or desirable, the greater the danger that peritoneal adhesions, pus, degenerated cyst or duct walls, will render the operation useless because of death or the continuance of serious symptoms impossible to remove. But what of those who might have been alive and well without operations who now are dead or worse—hopeless, helpless invalids? What of those who will not be operated on, but who must go to quacks or X-Ray specialists for relief which we can as well at least try to give them? What of the poor patient of the country practitioner who has no money and no place for private operation and who cannot get into the already over-crowded city hospitals, and who lives where no surgeon is fitted to give the reasonable chance? During our lifetime all of us will have cases of cholelithiasis which ought not to be operated on. This is pre-eminently a disease of old age and many men and women with diseased kidneys or arteries will run less risk with the gall-stones than with operation by the best surgeons. Let us consider what can be done for such persons.

For the attack of biliary colic, after the first symptom which calls our attention to gall-stones, there are three drugs universally recognized as applicable and one or all may be necessary. When the pain is severe, whether caused by mucus in the ducts or by a stone—Morphine 1-6 to 1-2 grain with 1-100 to 1-60 grain atropin sulphate gives usually relief. The amount of morphine should be as small as possible to quiet the pain. In one case I gave 1½ grains of morphine during two hours; but when the pain ceased the collapse for twenty-four hours was such that I never shall repeat the experiment. Chloroform given as in child birth often aids in the expulsion of the stone and allows a minimum dose of morphine. I cannot too strongly emphasize the necessity of never giving a prescription for the morphine, and of never allowing the patient a hypodermic syringe. I

have had one morphine habitué on my hands and she already had a syringe when I first prescribed for her. After eight years of taking from two to six grains a day, she finally went to Dr. T. D. Crothers and returned cured.

In her case and in all others under my care, I have given olive oil in tumbler-full doses at the time of the acute attack. This has been true since the first year of my practice when I tried to do without it. None of the patients love it, but if the physician uses a little brandy or peppermint on the top of the tumbler of oil to disguise the taste, and considerable moral suasion to assure its being swallowed and retained, it is seldom vomited. With this treatment the bowels always move naturally within twelve hours.

Olive oil soothes the inflamed colon when given as an enema in chronic constipation. It softens the feces, and, in mucous colitis, gradually gets the intestinal glands and mucous membrane into healthy condition. For burns and destruction of tissue in the mouth or vagina, or for abraded skin surfaces, oils are soothing and aid in repair. Knowing these facts, many of the old-fashioned general practitioners used sweet oil in generous doses in cholecystitis. They found that in most cases the oil was retained, that vomiting and the antiperistaltic flow of bile into the stomach was stopped. Where the duodenum was inflamed and the common duct was blocked with mucus, the duct easily opened and the frequently following jaundice was checked. They also found that where the obstruction was caused by stones in the common or cystic duct that the spasm was lessened and the stones were more easily removed. They further found that the drying up of secretions caused by the use of morphine, and subsequent constipation and gastro-enteritis was lessened or altogether done away with. Finding these facts from observation as I have done many times, and as you may do if you choose, these

empirics of the last century said olive oil was valuable in opening the bile-ducts when closed from any cause, and they used it.

Mayo Robson has tried olive oil a number of times with no effect. J. H. Keay has taken it and given it to others, but to him it is distasteful and he is somewhat skeptical as to its benefit. He insists, however, that it is rational treatment, and quotes Dr. Paul Colnheim, who at the International Congress in 1900, said, he found that cases of dilatations of stomach, dependent not on an organic obstacle, but on spasm of the pylorus following an ulcer or fissure, or on a cicatrix at the outlet of the stomach, were markedly improved by large doses of olive oil; that stenosis of the pylorus and duodenum, characterized by continuous secretion and pyloric spasm after the principal meals, were improved or completely cured, and that in alliteration the oil acted as a narcotic. Such results are strongly suggestive of the fact that olive oil may be useful in relieving spasm of the bile-ducts and allowing a stone to pass more readily with less pain.

I have given this olive oil in six and eight ounce doses some fifty times. Very seldom was there vomiting of the oil or disagreeable eructations of gas. I give it only at the time of an acute attack. When the attack is prolonged, with daily exacerbations for one or two weeks, I have repeated the oil every third day. I firmly believe it to be—as Keay suggests—an anti-spasmodic materially aiding in the removal of either stones or mucus from the common duct. Because of the stimulation of the mucous glands in the gall-crest, with a dilute oil cathartic, it might increase the danger of rupture—but I used it in one case where the bladder was as large as my two fists and with the happiest results. However, if it does nothing more than wash out the biliary, as in my experience it invariably does, its use in the attacks more than compensates for any disagreeable qualities. It must always be remembered that fear checks the biliary excretion, and faith in the usefulness of this remedy

on the part of the attending physician goes a long way towards the aid desired.

Olive oil is valuable then: 1st. As an efficient laxative thus preventing intestinal stasis and the accompanying auto-intoxication. 2d. As an anti-spasmodic assisting the chloroform in dilating the ducts. 3d. As a stimulant to the mucous glands of the gall-bladder thus rendering the bile more fluid. These are reasons enough for its use during the acute attack of biliary colic. Believe in it and use it and you will get results. Remember, however, that it is not a panacea—that it is only for the attacks and that in the interim other remedies are more valuable and less disagreeable.

For the collapse sometimes present during or following an acute attack, strychnia is sometimes necessary.

After the acute symptoms have subsided and the bowels have moved, sodium salicylate in doses of ten grains every four hours or aspirin in the same doses relieves the soreness, usually very rapidly. Dry cups over the right hypochondrium have been more valuable in my cases than any other form of counter irritation.

Diet must be very simple until the acute symptoms are gone—better largely nitrogenous. I give beef-tea, beef peptones in sherry wine, somatose and milk with or without carbonated waters, limiting fat, sugars and starches until partial or normal biliary flow is restored. Salines, preferably sodium salts, should be given in sufficient quantity to keep the intestines free from toxic and fermenting material.

When the acute stage has passed it is necessary to study each individual case. We must find the cause of the gall-stone production and remove as far as possible every source of irritation or pressure on the bile-ducts. It is impossible in the length of time allowed me to discuss all the symptoms of stone irritation or all the causes leading to their formation.

Any food which is not easily digested and absorbed causes auto-intoxication. This increases the pressure in

the intestines by the gases formed, or increases the work of the liver in its effort to destroy poisons and remove them from the body. Many of the sufferers have been adding fat rapidly. For these an excess of sugars and starches is undesirable. Women must lessen or entirely remove the pressure of corsets or bands about the waist.

The sluggish circulation of advanced age increases the pressure in the portal system. This is undoubtedly a factor in gall-stone production. A duodenum filled with gas and food which passes but slowly through the gut—not only is a feeding-ground for more pathogenic bacteria, but the intra-intestinal pressure must of itself dam up the common duct and allow the bacteria to more readily pass against the bile current. More cholesterol and lime are also formed by the irritated and congested duct and gall-bladder epithelium, furnishing extra stone material.

Cabot and podophyllin and rhubarb are not choledagogues as we once considered them. Their best action is in prevention of fermentation and auto-infection. In some cases for such action their use is desirable. Carlsbad salts, sodium succinate, sodium phosphate, these with baths, care in diet and moderate exercise have proven solid anchors to the windward.

Ox-gall seems to increase the amount of cholesterol and to hinder rather than aid the removal of cholelithiasis. It does increase the quantity of bile, but the increase is too great in cholesterol and lime—too little in their solvents and diluents. Eucatal, which is but olive oil and soda, may be used where better drugs will not be taken regularly, but too much must not be expected of it. Like "Pink Pills for pale people," a name is sometimes valuable when well advertised. As I have before said, I do not use olive oil between the attacks, and except in emaciated subjects, have no especial sympathy with half ounce doses of sweet oil three times a day given indefinitely. It requires severe and repeated

pain to make most patients follow strict medication especially where it means sodium salts of any kind in solution. Patience, study and perseverance will conquer but we must expend the effort to get results. Where I have used sodium succinate as recommended by W. F. Waugh and Solis Cohen, with an accompanying purgative when indicated, and sodium salts once a week, I have had no further attacks of biliary colic, but as my experience with this treatment covers but a year, I can only say thus far I have no fault to find.

Sedentary occupations play their part in this condition, and moderate exercise, either active or passive, is necessary. Massage is valuable when directed toward the reduction of abdominal fat and the increase of the tone of the intestines—not necessarily directed towards the gall-bladder itself. Stones quiescent in the gall-bladder do no harm in a large percentage of cases.

It is true that if every case of cholelithiasis is operated on the mortality of the particular operation will be very much reduced. This makes much pleasanter statistics for the individual surgeon. Except as the individual skill of the operator increases with the number of operations, however, the actual mortality from those cases which must have an operation to save life will not be materially diminished. Some patients will die who might have recovered if earlier turned over to the surgeon, but conservative surgery is the surgery of the future. The ease with which laparotomies can be done has caused the removal of ovaries and gall-bladders, of kidneys and uteri, of appendices and appendages, which later knowledge and more accurate prognosis have shown unnecessary. Post-operative pathology may be fully as serious in its symptoms as ante-operative pathology and the symptoms more serious, less easy to remove.

There are many symptoms of cholelithiasis and of serious gall-bladder disease which I have not mentioned, and some which we have all yet to learn. Many cases of

so-called gastritis are due to partial or complete blocking of the common duct. My personal practice has recorded in twelve years but twelve cases diagnosed as cholelithiasis. One was operated on before he came under my care; a cholecystotomy with removal of stones was performed by a most eminent New York surgeon. The diagnosis was brilliant, for physicians had been treating him for gastro-enteritis and there had been no history of colic. The same symptoms continued in a lessened degree after operation. I sent him back to the surgeon and he found no more stones on palpation and no reason for further surgical intervention. This patient, on other advice, spent last summer, four weeks at Carlsbad and seventeen days at Francisberg. He now feels perfectly well. He takes Carlsbad salts once weekly and occasional doses of sodium succinate. Why could he not as well have been sent to Carlsbad without the operation? This case has given a history of diarrhea rather than of constipation. Of my other cases, two are dead; one as the result of urinary suppression following double pneumonia; the other from pulmonary tuberculosis. The other cases are all apparently well at this present writing.

Four of the cases, three of them under observation for ten years, have been advised operation by me at various times. They have all had partial or complete blocking of the common duct, peritonitis, jaundice, in two cases persistent and severe collapse, and pain attacks with temperature lasting, with slight intermissions, from two to four weeks. I have found gallstones in three of these cases and know of their presence in the fourth. One patient had a blocking of the cystic duct for several days. The gall-bladder was distended until as large as the head of a fetus at term. Before she came to me she had been under the best medical and surgical care, and immediate operation had been advised. I first saw her in an acute attack, with an absolute agreement to operation when I said it must be done. She was not in

condition then to be moved and Dr. Howard Lillenthal was to operate at Mt. Sinai Hospital. This was nearly two years ago. Gallstones have several times been found in the feces. Twice elongated cylindrical stones, the size of a shoepencil and one to two inches in length were caught crossways at the anus, and she needed my assistance to remove them. In spite of this fact, during one and three-fourths years she has had no new attack of biliary colic. Further, no tenderness or indication of inflammation in the region of the gall-bladder. Not only that, but she manages a millinery store, does an enormous amount of work, and is so very well that my pocket-book suffers. In this case the material difference was removal of waist constriction, and a more rigid following of treatment because of the constant menace of operation.

In closing, I would suggest that every man who treats gall-stone cases, either medically or surgically, should own and study the *Medical Treatment of Gall-Stones* by J. H. Kray, and the last edition of Mayo Robson's book on *Diseases of the Gall-Bladder and Gall-Ducts*. Their careful study will repay both the surgeon and the physician, and what is of still greater importance, the patient.

SURGICAL PAPERS.

REPORT ON THE PROGRESS OF SURGERY.

I.

C. C. GODFREY, M.D.,

BRIDGEPORT.

In presenting this paper on the progress of surgery, I would call attention to the following facts:

First. I have arranged with my colleague Dr. Cheney that I should confine my paper more especially to minor surgery, anesthetics, antiseptics, etc., while he should deal with the surgery of the internal organs.

Second. That this paper does not pretend to do more than give an account of such progress in surgery as I have been able to glean from such medical journals as are most frequently met with in the offices of Connecticut practitioners.

Third. The material which I shall present is as nearly as possible, (consistent with the necessary abridgment) in the language of the authors, as I believe this method is more likely to convey the original meaning, than any attempt I might make to remodel it into expressions of my own.

Anesthetics.

Dr. James T. Grathney, (Med. Rec., Nov. 19, '84) of New York, calls attention to the value of oxygen in combination with general anesthetics. He says: The principle that I have deduced from my experiments is this, oxygen increases the value of all anesthetics as regards life, without decreasing their anesthetic effect. A note appended to his paper contains the following remarks, "After the reading of this paper, three cats were anesthetized, with the following results: Chloroform and

air, death in twenty minutes; ether and air, sixteen and a half minutes; at the end of fifty one minutes, the cat anesthetized with oxygen and chloroform was breathing regularly, when, at the request of the chairman, the anæsthetic was stopped. Oxygen was administered for a few minutes, and the animal made an uneventful recovery.

Sterile Water Anesthesia.

Dr. Gant sums up the advantages of water anesthesia as follows: (Med. Rec., Oct. 29, '04.)

One. Effective local anesthesia is so quickly and easily obtained by this method that in a majority of operations upon the rectum and other parts of the body there is no necessity for the patient to enter a hospital and undergo general anesthesia. For this reason it appeals strongly to the better class of patients.

Two. The anesthesia instantly follows the injection of water sufficient to distend tightly the tissues to be incised or removed. This enables the operator to work quickly, and the patient is not confined to the hospital during the after treatment, but can come to the office to be dressed, thus economizing the surgeon's time and labor.

Three. No annoying or dangerous complications have been observed during or following the injection of the amount of water necessary to produce anesthesia.

Four. In the writer's experience there has been but little bleeding during the operations, and dangerous secondary hemorrhage has never occurred.

Five. Except the stinging pain sometimes induced in the beginning of the distension, the patient has but little discomfort during and immediately following the operation.

Six. It eliminates the danger to life from heart, lung and kidney complications, which are always to be feared during and following the administration of ether or chloroform, and it avoids the increased pain and hæmorrhage

rhage due to straining and vomiting after general anesthesia.

Seven. The only requirements are a suitable syringe, a needle and boiled water, and these are usually at hand.

Eight. The radical treatment of hemorrhoids and fistula can be so easily carried out under this method in the physician's office, with so little danger and inconvenience to the patients, that it should relegate to oblivion the much vaunted injection treatment, which is so dangerous and uncertain.

Dr. Stevens of Bridgeport, (*Journal American Med. Ass'n.*, April 29, '05) reports having used Dr. Gant's method in one exploratory laparotomy, 39 operations for hemorrhoids, 3 for fistula in ano, 2 for fissure in ano, 3 for sebaceous cysts and 3 for varicose veins of the leg. He recommends that warm sterile water be used, and says in conclusion, I would recommend that water anesthesia be given a thorough trial. Failure at first attempts should not condemn its use, for practice will soon enable one to distinguish the proper amount of distension necessary to produce anesthesia. He feels sure that when this method has become more familiar, the advantages will be so apparent that its use will soon become general.

Prof. Pennington, (*Jour. A. M. A.*, April 8, '05), calls attention to the irritating action of pure water and says that Heinze of Dresden in his experimental investigations, found that pure water alone is an intense irritant to the sensory nerves, and that anesthetic solutions diluted with it beyond certain extent have the same effect, and render the injections painful. He also demonstrated that the addition of salt entirely obviated this source of irritation. Prof. Pennington therefore recommends a normal salt solution which he has found very satisfactory.

The use of small quantities of adrenalin chloride with cocaine or Beta-eucalin in the production of local anes-

thetia is proving very satisfactory, especially the combination with Beta-eucain in consequence of its being less dangerous to administer than cocaine. The adrenalin prolongs the effect of the anæsthesia, and reduces the quantity necessary to produce the full analgesic effect.

Professor Pennington uses the following formula to make the usual salt solution. Put into an Erlenmeyer or Jena glass flask 3½ oz. (100 c. c.) of distilled water and 11.5 grains (.75 gm.) of chemically pure sodium chloride. Boil for two or three minutes; when cooled to blood heat it is ready to use. To make the eucain-adrenalin solution add three grains (.2 gm.) of beta-eucain lactate to the water at the time the salt is added, and after boiling and cooling to the body temperature add ten drops of adrenalin solution, and it is ready to use.

Baker of London has used as much as six grains of beta-eucain hydrochlorate and twenty minims of adrenalin chloride solution without noting any ill effects. Masters of New Orleans and others have used larger amounts. They are careful, however, not to allow more than five grains of the drug to remain in the system.

Aseptic Surgical Technique.

Dr. Ochsner, (*Annals of Surgery*, Oct. '94), says in order to obtain the best possible results aseptic surgical technique must be reduced to a system, and "in order to secure the best possible results such a system must be (1), simple and yet comprehensive; (2), it must be uniform and (3) above all things, it must be reasonable.

Simplicity. It is true that many most complicated systems have furnished large series of successful results, but the results have in no way excelled those obtained by vastly simple methods.

Uniformity. One of the most important elements in the development of a satisfactory system lies in the uniformity with which it is practiced by the chief. Of course it is wise to make changes in order to perfect or

ery system, but this should be done only after careful consideration, and not in a haphazard manner.

Reasonableness. Surgery is more and more coming to be a very reasonable, logical profession; and in developing a system of aseptic practice, one can count with much greater certainty upon the probability that every one concerned will carry out the details if he is expected to do things which would appeal to a sensible person, than if he is expected to go through an unreasonable routine performance."

Preparation for an Aseptic Operation.

Sterilization of Materials in the Steam Autoclave. Dr. Monks of Boston, Asst Surgeon to the Boston City Hospital, (*Annals of Surgery*, Oct. '94) says: "It is found that exposure of materials (dressings, sponges, gowns, sheets, towels, silkworm gut &c.) in the autoclave to a pressure of fifteen pounds of saturated steam for one half hour is all that is necessary, provided that the bundles are loosely done up and loosely packed, so that all parts of them are readily accessible to the steam. That one half hour is sufficient in practice has been proved by the pathological department of the Hospital, (Boston City?) in fact, bundles containing cultures of *bacillus*, in its sporing stage, have been found sterile even after fifteen minutes in the autoclave at fifteen pounds pressure. Salt solution is sterilized in flasks by exposure for one half hour at ten pounds pressure.

Preparation of Patient's Skin.

Experience seems to have demonstrated that in the preparation of the patient's skin no special aseptic precautions are necessary on the day before operation—that accident and other emergency cases, on which only a final preparation is made, seem to do just as well, aseptically speaking, as those cases prepared with great pains in the hospital the day before. This suggestion has greatly simplified the aseptic process.

Caps and Masks.

The theoretical danger of infection from the head and mouth of the surgeon justify our insisting upon the wearing of caps and masks at aseptic operations—at least at major operations—until their necessity is disproved. If caps are not worn, the surgeon's hair often comes in contact with that of his assistant, directly over the wound, and particles of dust, dandruff and bacteria are likely to descend into it. Minute particles of highly infectious material may be expelled from the mouth, and possibly from the nose, during talking, coughing or sneezing.

F. W. Andrews, Pathologist and Sanitary Officer of St. Bartholomew's Hospital, London, (*Lessons on Disinfection and Sterilization*, 1903, p. 123), says: In addition to the care of the hands, the surgeon should also have washed his face thoroughly; and if he wears a beard or moustache, special heed must be paid to the cleanliness of these. Very little attention is usually paid to the cleansing of the mouth; yet, when it is remembered that the saliva contains a larger number of micro-organisms than the worst sewer, that streptococci and staphylococci are amongst the most numerous of these, and that they are proved to pass into the air in loud talking or coughing, it would appear worth the surgeon's while to take into account a cavity which comes so near the operation wound.

Dr. Harrington of Boston, (*Annals of Surgery*, Oct. '94), says on this subject: Of far greater importance, it seems to me, is the danger of infection through saliva. Repeatedly have I seen surgeons, even in abdominal cases, talking directly into the wound. It has been demonstrated by Flügge, of Breslau, and by several others, that in ordinary conversation there is a constant throwing out of minute droplets of saliva, some of which are projected laterally several feet. They are expelled in great numbers in the use of words or syllables beginning with the consonants d, k, p and t, the formation

of which involves the sudden explosive liberation of air held in the mouth under pressure. They may be sent forth as numerously during whispering as with loud speech. Now, the mouth cavity is a singularly unclean place, for the secretions of the mouth are likely to be richer in bacteria than the foulest sewage, and these bacteria are largely staphylococci, diplococci and streptococci, and are likely to be exceedingly virulent. In one series of experiments, recently published, the average number of organisms per droplet of saliva as cast out in ordinary speech proved to be no less than 4,375.

As a substitute for rubber gloves Dr. Wiggin recommends the following. (*Med. Rec.*, Nov. 5, '04).

- | | | |
|----|---------------------------|--------------|
| R | Alcohol, (96%), | |
| | Ether, | an 5 l i x m |
| | Cellulose, | 5 |
| M. | Et. sol. Adde Ol. Ricini, | 1 ss |

The Nature of Carcinoma.

Kelling. (*Münchener Medizinische Wochenschrift*, June 14 and Oct. 25, '04) propounds a theory to account for the nature of carcinoma. (*Med. Rec.*, Nov. 19, '04) which not only appears plausible, but surpasses all others in that it is not merely of theoretical interest but promises to be possibly of direct service in the fields of diagnosis, treatment and prophylaxis. He believes that embryonal cells from animals or carnivorous insects or food enter the blood or are deposited in the wounds of the skin and mucous membrane. The embryonal cells of hens' eggs, containing chick embryos a few days old were injected into dogs, with the result that tumors having the gross and microscopic characteristics of malignancy were produced. The administration of pigs' embryos gave a like result. Every effort was made to exclude sources of error, but of themselves these results, though trustworthy, would not have the significance they do were it not for the next step.

A portion of the tumor in a fatal case of gastric car-

cinoma was macerated and the extract injected into a rabbit. In due course of time this animal yielded a serum which not only gave, as was to be expected, a precipitin reaction with extract of the tumor and with human albumin, but also one with chicken albumin, though not with any other sort of albumin, thereby proving that the tumor contained a recognizable amount of albumin having the characteristics of that obtained from the hen. The author has tested in this way twenty-four cases of malignant disease in man and obtained positive results in eleven.

It is possible to go even farther than this, however, and we may expect to find that the circulating blood of carcinoma patients contains substances capable of giving a precipitate with the serum of rabbits adapted for the specific albumin. In fact, out of fifteen cases tested in this way by the author, a positive reaction was obtained in ten, using only chicken and pig sera.

The inestimable advantage of being able to make an early diagnosis of such conditions as gastric carcinoma, needs no comment.

In one case Kelling operated solely on the strength of the serum reaction and found a new growth high up under the ribs, where it was inaccessible to palpation. In three cases diagnosed as carcinoma on clinical evidence, but giving a negative reaction, laparotomy revealed non-malignant tumors.

Whatever merits this theory will ultimately be found to possess, its publication should at least stimulate investigation in what appears to be a promising field of research.

The Surgical Treatment of Complete Descent of the Uterus.

Dr. E. C. Dudley has a valuable article in the Canadian Practitioner and Review, which occurs as a reprint in January 1905 number of *Journal of Treatment* p. 75 on The Surgical Treatment of Complete Descent of the Uterus, in which he says, complete descent of the

Uterus, is always associated with extensive injury to the pelvic fascia, the pelvic connective tissue, the muscles of the vaginal outlet, the perineum and vaginal walls, the malposition of the uterus being an incidental factor. The uterus in its normal position lies across the pelvis. The long axis of the uterus in this normal direction makes an acute angle with the long axis of the vagina. In the etiology and treatment of descent the practical significance of this acute angle is very great, because the uterus in the act of prolapse must descend through the vaginal canal in the direction of that canal, that is, a coincidence of the two axes is a pre-requisite of descent. It follows that one factor in the treatment of descent must be to restore the normal angle between the axes. After condemning the usual methods of narrowing the vaginal outlet, which leaves the axes in the same line, he says, an efficient operation on the vaginal walls should have for its object, not a narrowing of the vagina, but restoring the normal direction of it with a double purpose, so that (a) the upper extremity, together with the cervix uteri, shall be in its normal location within an inch of the second and third sacral vertebrae, and so that (b) the lower extremity of the vagina should be brought forward toward the pubes. The fulfillment of these two indications will restore the normal obliquity of the vagina, and will hold the cervix uteri so far back toward the sacrum that the corpus uteri must be directed forward in its normal anterior position of mobile equilibrium. With these conditions, the uterus being at an acute angle with the vagina and having little space posteriorly, cannot retrovert and turn the necessary corner which would permit it to prolapse in the direction of the vaginal outlet. Complete prolapse, being hernia, should be treated according to the established principles of herniotomy by reducing it and then excising the sac in such a way as to expose strong fascial edges which should be firmly united by suture. The absurdity of treating any other hernia by superficial deam-

dation and reefing or tucking in the surfaces by sewing them together must be apparent to any one.

The operations which he advises is as follows:

First step. To split the antero-vaginal wall by means of scissors from the cervix uteri to the neck of the bladder, then to strip off the vaginal from the vesical layer, and cut away the redundant part of the vaginal wall.

Second step. To extend the incision and remove the mucous and submucous structures to either side of the uterus, being sure to reach the fascial structures, which are in direct connection with the lower margins of the broad ligaments, or, what is better, to reach the ligaments themselves.

Third step. To introduce silk-worm gut or chronic cat-gut sutures so that when tied they will draw the loose vaginal tissues and the broad ligament structures on either side of the cervix uteri in front of the cervix so as to force the cervix back into the hollow of the os crum.

Fourth step. Additional interrupted sutures are introduced to unite the vaginal wound. It is necessary to bring forward the posterior wall of the vagina and the perineum under the pubes, so as to give support to the anterior wall, or the latter will fall again, will drag the uterus after it and the hernial protrusion will be reproduced. The treatment therefore, of procidentia must always include an adequate operation on the perineum.

REPORT ON THE PROGRESS OF SURGERY.

II.

B. AUSTIN CHESLEY, M.D.,

NEW HAVEN.

Gastric Ulcer.

Moynihan has detailed one hundred cases of gastro-enterostomy for simple ulcer of the stomach and duodenum. The mortality was two. Profuse hemorrhage was the indication in fifteen cases, chronic ulcer with intractable dyspepsia and dilated stomach in eighty-five. The proportion of females to males was fifty-six to forty-four. In general he found multiple ulcers instead of single.

Moynihan calls attention to the extreme variety of symptoms present. Vomiting was often not present. Hematemesis occurred in less than half. Melena was present only in three cases. In one of them was there evidence of profuse bleeding after operation. In over ninety per cent. the posterior operation was the one elected.

W. J. Mayo has also contributed a review of three hundred and three operations upon the stomach and first portion of the duodenum. Of these cases twenty-six were duodenal, with two deaths. Five times the operation was necessary on account of gall-stone perforation. In no case was the duodenum the seat of primary malignant disease. The remaining two hundred and seventy-seven cases of this review were for various diseases of the stomach, with twenty-eight deaths. There were one hundred and sixty-eight benign cases with eleven deaths. The large majority of the operations were for chronic

ulcer. On account of the fact that the large majority of chronic ulcers of the duodenum occur in the first portion and not that which is bathed in alkaline juices, leads Mayo to believe that gastric ulcer is due to perverted stomach secretion. He has also demonstrated ulcer of the jejunum after gastro-enterostomy. In the ulcers of the stomach and duodenum found by Mayo, the upper two inches of the duodenum, and pylorus, was usually the seat of the disease. If ulcers do occur in the cardiac end of the stomach they do not call for operation, as there are usually no symptoms. His mortality in cancer of the stomach was 15.6 per cent., seventeen deaths in one hundred and nine cases, which he attributes to late diagnosis and constitutional infection with cancer.

Rotzen calls attention to the blood and lymphatic supply of the stomach, and asserts that the reason why such a small number of gastric cancers have been cured by extirpation is that a portion of the viscus has been left behind into which the blood and lymphatic channels of the diseased area have been directed. He further advises excision of all the stomach lying about and to the right of a line drawn between the gastric artery and the left gastro-epiploic vessels. Gastro-enterostomy was done one hundred and sixty-eight times, the percentage of mortality being in benign cases eight, in malignant thirty.

Gastro-jejunostomy for benign obstruction was strongly endorsed by Mayo on account of the ease of its performance and the absence of regurgitant vomiting afterwards. Maynihan also believes in the operation, and describes a simple method of performing the same.

After the abdomen is opened the whole surface of the transverse meso-colon is exposed and the vascular arch formed mainly by the middle colic artery is seen. "A bloodless spot is chosen, a small incision made in the meso-colon and the finger placed in the lesser sac. The opening in the meso-colon is then gradually enlarged by

stretching and tearing until the fingers can be passed through it. The hand of an assistant now makes the posterior surface of the stomach present at the opening and the surgeon grasps the stomach and pulls it well through. A fold of the stomach about three inches in length is now seized with a clamp whose blades are sheathed with rubber tubing, the clamp is applied in such a way that the portion of the stomach embraced by it extends from the greater curvature obliquely upward to the lesser curvature toward the cardia. It is important that the point on the greater curvature held by the clamp should be the lowest point. This is made certain before the stomach is turned over to reach its posterior surface by observing the point which lies lowest in the abdomen. When the posterior surface is exposed, special care is taken that the lowest point is fixed in the end of the clamp. The duodeno-jejunal angle is now sought and readily found by sweeping the finger along the upper surface of the root of the transverse mesocolon to the left of the spine. The jejunum is then brought to the surface and a portion of it, about seven or eight inches from the angle is fixed in a second pair of clamps. The two clamps now lie side by side on the abdominal wall and the portion of the stomach and jejunum to be anastomosed are well outside the abdomen embraced by the clamps. The stomach with the exception of the part embraced by the clamp is returned to the abdomen through the upper part of the incision. The whole operation area is now covered with gauze wrung out of hot sterile salt solution, the clamps with the stomach and jejunum which they embrace alone being visible outside the abdomen. A continuous suture is then introduced, uniting the serous and subserous coats of the stomach and jejunum. The stitch is commenced at the left end of the portion or growth enclosed in the clamp and ends at the right. The length of the sutured line should be at least two inches; its average length is 2.25 or 3 inches. In front of this line an in-

cision is now made into the stomach and jejunum, the serous and muscular layers of each being carefully divided until the mucous membrane is reached. As the cut is made the serous retracts and the mucous layer pops into the incision. The cut edge of the serous coat is loosened all around from the underlying mucosa. An ellipse of the mucous membrane is now excised from both stomach and jejunum, the portion removed being about 1.3-4 or 2 inches in length and rather more than half an inch in breadth at the center. The gastric mucosa shows a marked tendency to retract, it is therefore secured with a pair of minute (French) forceps on each side. No vessels are ligated as a rule. The cut surface of the bowel and stomach may occasionally ooze slightly; this can be checked at once by tightening the clamps one notch. The outer suture is now introduced. It embraces all the coats of the stomach and jejunum, and the individual stitches are placed close together and drawn fairly tight so as to restrict all the vessels in the cut edges. The suture begins at the same point as the inner one, and is continued without interruption all around the incision to the starting point, where the ends are tied and cut short. It will be found that there is no need to interrupt the stitch at any point, for there is no tendency on the part of the surface edges to pucker when the stitch is drawn tight. The clamps are now removed from both the stomach and jejunum in order to see if any bleeding point is made manifest. Very rarely, about once in ten cases, a separate stitch at the bleeding point is necessary. The other suture is now resumed and continued around to its starting point, being taken through the serous coat about 1-6 of an inch in front of the inner suture. This outer stitch is also continued throughout; when completed the ends are tied and cut short as with the inner stitch. There are thus two suture-lines surrounding the opening an inner hemostatic, which includes all the layers of the gut and an outer approximating which takes up only the serous and subserous coats.*

With regard to the surgical treatment of malignant and non-malignant diseases of the stomach, Vander Veer reaches the following conclusions: (1) That gastro-enterostomy can be applied to all kinds and conditions of stenosis of the pyloric end of the stomach. (2) That it is a preferable operation to that of resection of the stomach in many cases, the immediate mortality being less, and the possibility of extension of life being quite as great with as much comfort. (3) Next to gastrostomy I believe yet this operation will necessarily be limited to but few cases. In doing it, great attention should be paid to the removal of the lymphatic glands, as in this rests much of the permanent success of the operation and the return of the malignant growth.

In answer to the argument against total extirpation of the stomach that when so much is involved as to render this operation necessary, the disease has advanced so far that it is useless, Moynihan does not agree. He asserts that the whole stomach can be infiltrated without secondary deposits.

The Heidelberg Clinic furnishes the following statistics as the results of clinical researches in anatomical carcinoma; gastro-enterostomy two hundred and fourteen cases, with an immediate mortality of 35 per cent. life prolonged four or five months and a marked decrease in suffering among the last hundred cases, where there is a mortality of 18 per cent. In resection, 54 cases, mortality 34 per cent.; in last thirty-three, 17 per cent. Of the thirty cases operated upon more than three years ago, eighteen survived, and of these seven are still alive. The longest survivals are twelve, eleven, five, and four years. Resection should be practiced more, because it is not more hazardous than gastro-enterostomy, the occurrence of pneumonia after the latter operation being so frequent and so fatal in its result. The prospect of radical cure is much greater than was formerly thought. Resection of both stomach and duodenum must be wide-

ly and boldly done. In the event of recurrence resection prolongs life twice as long as gastro-enterostomy.

J. A. Blake puts himself on record as being strongly in favor of using salt solution very freely in flushing the peritoneal cavity, and to usually leave a quantity behind in the abdominal cavity. He believes that irrigation is much more effective than sponging. As regards drainage, he favors drainage of the field of operation and the affected area only, believing that extensive drainage may cause injury to the gut and obstruction. Post-operative meteorism and vomiting are less frequent in the cases not drained than in the cases which were drained. He presents a table of thirty-two cases, which he divides into three classes, those where the pus is localized, those where the infection is not limited by adhesions or gravitations but where the limit of the infection is ascertainable, and in the last, general peritonitis, where no part of the peritoneum can be demonstrated as free from invasion. His mortality was 85 per cent.

Lund, of Boston, endorses the position of Blake with regard to drainage and irrigation. He further believes that enterostomy with emptying of the bowel followed by the injection of Epsom salts in cases of extreme distension is advisable.

In this connection the statistics of Dr. George Fowler of diffuse peritonitis resulting from appendicitis are interesting. In no case was operation declined on account of the desperate condition of the patient. Sixty-seven per cent. resulted in recovery. He bases his good results on the use of the position which he advocates, namely, the elevated head and trunk position. The salient points in the treatment as advocated by Fowler are in his own words: "(1) A small incision and the avoidance of incision. (2) Thorough cleansing of the primary focus of infection and removal of the appendix. (3) Evacuation and cleansing of all accessory abscess cavities and the pelvis before washing out the cavity

with peroxide solution followed by hot saline. (4) The continuance of the saline flushing until the sutures are placed and for the most part tied. (5) The provision of proper drainage for the pelvis either by means of the large drain-tube containing a capillary drainage strip emerging through the lower angle of the wound, or in females by a large caliber rubber-tube filled with wicking passed through a posterior colpotomy incision. (6) The drainage of accessory abscess cavities with gauze or wicking. (7) The elevation of the head of the bed to accelerate the drainage of septic fluid into the pelvis where it can be removed by the glass tube, or in cases of vaginal drainage find a ready exit."

The most valuable contribution to malignancy in the intestine is contained in the monograph of Von Mikulicz, which includes three sarcomas of the small intestine, two of the colon, one epithelioma of the transverse colon, five carcinomas of the small intestine, and ninety-five of the large intestine. Stenosis, obstruction, ulceration, and bleeding are the usual indications of the condition. The nearer the stomach the tumor is situated, the more marked are the symptoms. Intestinal cancer may be present without symptoms until late.

M. L. Harris has operated upon sixteen cases for penetrating wound of the abdomen, from which he draws the following conclusions: "1. In penetrating wounds of the abdomen there are absolutely no symptoms which indicate injury to any of the viscera except those in connection with the urinary tract, stomach, and occasionally the lower bowel. 2. Except those relating to general shock, all symptoms following such wounds indicate either internal hemorrhage or peritonitis. 3. To wait for symptoms of perforation of the intestine means to wait until peritonitis has developed, therefore 4. every bullet or stab wound which penetrates the abdominal cavity should be operated upon at the earliest possible moment in order to anticipate the advent of peritonitis. 5. No time should be wasted in attempting to demon-

trate the presence or absence of intestinal perforation by such means as the rectal insufflation of gases or vapors or the analysis of peritoneal injection of air or liquids. 6. It is essential systematically to examine the anterior gastro-intestinal canal in all cases regardless of the point of entrance of the wounding body. 7. Whenever the alimentary canal has been perforated suitable drains (Harris prefers the so-called cigarette drains) should be placed through the operative incision and counter-incision as may appear best suited to each individual case."

Beart and Ashurst have presented a discussion of intestinal perforation in typhoid fever with the statistics of 362 cases in which operation was performed. They believe that perforation occurs in about 2.1-2 per cent. of all cases of typhoid fever. The perforation may be single or multiple, and may occur opposite the mesenteric attachment or between the layers of the mesentery. On account of the operations which have been done in suspected intestinal perforation and no perforation found, and post-mortems made in other cases where no perforation was suspected and this lesion found, great stress should be laid on the diagnosis. A marked fall in temperature, rigidity of the abdominal wall, and increased pulse-rate are the most important symptoms. Not much weight is attached to the ordinary leucocytosis count. The mortality was 74 per cent. They believe that with more care exercised in early diagnosis, immediate operation, and careful anesthesia the mortality should be less than 50 per cent.

Enterostomy has been more frequently practised by a number of surgeons for peritonitis. The stand taken by all of these has been well condensed into the conclusions advanced by Greenough, of Boston, which are given as follows: "1. The obstruction of the intestine in diffuse peritonitis is the result of a combination of causes. 2. The most important cause is suspension and paralysis of peristalsis. 3. Paralysis of peristalsis is due to inhibition of toxic paralysis and to paralysis of distension.

4. Mechanic causes, such as infiltration of the bowel wall and light adhesions in certain cases contribute to this paralysis. 5. Pure mechanic obstruction due to adhesions is the result of chronic or local peritonitis of at least some days duration. 6. Enterostomy is indicated in addition to other operative measures in the graver forms of diffuse peritonitis. 7. Its greatest advantage is the drainage of the gases and decomposing contents of the bowel and the relief of paralysis of peristalsis. 8. By enterostomy the surgeon obtains direct control over the intestine for lavage and for the introduction of stimulants and nourishment, fluids and cathartics. 9. For the relief of paralysis of peristalsis primary enterostomy is to be preferred to secondary operation. 10. Enterostomy is best performed by the use of the Mixter tube. 11. The cecum is the most satisfactory part of the bowel for an enterostomy, and the jejunum should be avoided. 12. Spontaneous closure of the fistula may be expected when the cecum is opened if the opening is kept below the level of the parietal peritoneum. 13. By the minimum use of enterostomy in the graver forms of diffuse peritonitis, the number of patients dying on the second, third, and fourth days after the operation is reduced. 14. The symptoms of visible peristalsis and spasmodic pain in the intestine obstruction indicate a mechanic cause for the obstruction. 15. The persistence of these symptoms unrelieved by enemata and cathartics is an indication for operations. 16. Under these circumstances the cause of the obstruction should be removed if possible by operation. 17. In advanced cases of obstruction of this form enterostomy of the coil of intestine nearest above the obstruction should be done."

An abstract of forty-one cases in which drainage of the intestine was practiced at the Massachusetts General Hospital is appended to Greenough's paper.

One of the valuable papers of the year is a discussion of appendicitis by John B. Murphy, based on two thous-

and operations performed in the last five years. Murphy arranges the symptoms in the following order, and asserts that when this order is disarranged he questions the diagnosis; namely, pain, sudden and severe, nausea and vomiting coming on within three or four hours after the pain, general abdominal sensitiveness marked on the right side, and elevation of temperature coming on from two to four hours after the onset of pain. Pain is a constant symptom, and was not once absent in his series of cases. Its acme was usually reached about four hours after the onset. It subsides gradually, and when it subsides suddenly it is almost invariably due to liberation of pus through the neck of the appendix or rupture of the wall of the appendix. Cessation of pain does not mean less danger, but is an alarm signal. In acute infections the temperature is an early and constant symptom. A drop in the temperature, however, does not mean a cessation of the pathological process. A drop in the temperature may indicate a decrease in the pressure. The temperature here as in other places must be recognized not as a manifestation of pus, but as the manifestation of absorption of the products of infection. Without the absorption there is no elevation. A drop in the temperature after the initial rise to 98°, remaining stationary is not inconsistent with the presence of a large quantity of pus.

Murphy places small reliance on leucocytosis as a symptom, with the exception that a sudden and great increase in the number of leucocytes together with the other symptoms usually heralds the onset of an extensive peritonitis.

The pulse is of little value in the differential diagnosis of this disease, but has marked influence on determining the extent of infection.

In the small number of cases where focal concretions are found or foreign bodies, in the former 38 per cent. and in the latter 2 per cent., it must be kept in mind that occasionally the perforation of the appendix by such

concretions may be the first indication of appendicular trouble. These are the most dreaded of all cases, and occur in about one per cent. of all infected cases.

The most desirable time for operation is in his opinion within the first forty-eight hours of the attack, that is, before perforation. The diagnosis must be made within the first twenty-four hours. Within the first forty-eight hours it is sometimes impossible to predict what the course of the case will be. Murphy warns against extensive manipulation where the disease has at all advanced, as the exudations found in such cases usually protect the patient from the staphylococcus infection. Simple incision with drainage, even to allowing the appendix to remain in situ is preferable to the more radical operation if much exudation is present.

Denver reports a year's work in appendicitis of five hundred and sixty-six cases, the total mortality of which is 5 per cent. He advocates early operation in all cases, and believes that there is great peril in waiting for the interval. Attention is directed also to the close study of the leucocyte count in eighty-three cases of appendicitis by Herbert French, of London, who reaches the following conclusions:

"The value of leucocytosis in relegating a given case of appendicitis to its proper group and in deciding whether an operation should be performed or not is yet to be over-rated. Its value judged from the present cases is even less than that deduced by other recent observers from the figures they have found. Many cases with 20,000 leucocytes have resolved spontaneously, many with 15,000 or less have had pus present. At the same time, leucocyte counts have afforded valuable evidence in certain cases. In no case in which the leucocytes reached 35,000 has pus been absent. A rising count is of more importance than is the absolute number. Above all, leucocytosis is to be regarded as but one clinical sign among many. By itself it may mislead, but taken in conjunction with the pulse-rate, the temperature, and

the general condition of the patient it is an additional sign which may be most valuable in the diagnosis of a difficult case."

The advisability of rectal drainage in cases of pelvic abscess due to appendicitis is warmly advocated by Renard, a French surgeon. A drainage-tube is inserted through a free opening in the rectum, which is allowed to remain three or four days.

R. Farquhar Curfiss discusses the surgical treatment of gallstones, and presents the following conclusions:—"The advantage of operation performed while the stone still remains in the gall-bladder or cystic duct and before grave infection has developed are numerous: (1) the serious accidents of infection are avoided. Inflammatory conditions which may have existed can be improved or cured just as the drainage cures urinary cystitis. (2) The stone is removed before it enters the common duct, thereby preventing all the dangerous consequences likely to follow the presence of a stone in that passage. (3) Further attacks of cystitis and colic are prevented. (4) Further calculus formation is prevented or impeded, for the stones are formed in infected gall-bladders, and the latter may be removed by operation or rendered so healthy by drainage that no more calculi will form. Kehr estimates the occurrence of stones, adhesions and other complications after operation in his cases at ten per cent. Schott gives the final result of one hundred and eighty cases from Coe's clinic followed for five or six years after operation and including serious conditions requiring cholecystectomy, cholecystenterostomy, etc., and finds that only five per cent. has symptoms referable to the biliary system. Not a single case had another gall-stone form after operation. (5) It must be remembered also that latent cases are by no means free from danger, so that the individual who has recovered from an attack of colic cannot be considered cured even if he is entirely free from symptoms for years, as it is probable that the stones remain behind or that some

chronic cholecystitis persists. The possibility of secondary pancreatitis must be kept in mind, and also that of cancer of the gall-bladder, which is more common than is supposed.

Riedel states that he has observed in his practice over fifty cases of cancer of the gall-bladder, and it is to be noted that while the presence of gall-stones is universally accepted as the principle cause of the disease, the stones have generally existed without previous symptoms, the first sign of trouble being given by the tumor of the gall-bladder itself. (5) Without reference to more important results, it is the general feeling of those with experience in the surgery of cholelithiasis that in the latent cases, while the patients do not present symptoms pointing directly to the biliary system, they are that in the future medical men will agree upon more early and more radical treatment of many cases of gall-stone disease, and that the removal of the gall-bladder—the fons et origo of gallstones in the vast majority of cases—will be done more often. The indications for cholecystectomy will hence be more extended and operations upon the common bile-duct become of necessity less frequent."

Scudder and Winslow have compared the benefits of cholecystectomy and cholecystotomy, taking for a basis the operations of both done at the Massachusetts General Hospital within a period of the last ten years. After discussion the pros and cons of both operations, they express the following opinion: Cholecystotomy should be done in those cases of gall-bladder and biliary duct surgery in which quick drainage is needed for the deeper ducts and in which the surgeon is not absolutely sure that the deeper ducts are entirely free. Cholecystectomy should be done in cases of acute cholecystitis, in cases of cholecystitis resulting in and empyema of the gall-bladder, in small contracted gall-bladder, in infected gall-bladder which is functionally useless and which will not be of service in facilitating drainage, and in all cases

in which the surgeon is morally sure that the deeper ducts are free from obstruction.

Schoff gives one hundred and eighty cases of Coerny's clinic followed for six years after operation, and from them only five per cent. had symptoms referable to the biliary system.

Koser estimates the recurrence of stone, adhesions, etc., as ten per cent.

Lewison, of San Francisco, relates the history of a case of Rant's disease in which recovery followed splenectomy. Out of one hundred and thirty one splenectomies for different causes there were sixteen deaths, or 12.2 per cent. Prior to 1896 the mortality was 42.2 per cent. Without surgical treatment Rant's disease usually terminates fatally. In subjecting these cases to operation diagnosis is of the greatest importance. Immediately after splenectomy for this condition there is an increase in the red and white corpuscles without a corresponding increase in the hemoglobin. The high leucocyte count as well as the low color index persisted for a long time.

J. W. Taylor of Birmingham, believes that neglected deep lacerations of the cervix, vagina, and perineum are the basis from which most septic cases originate. He calls attention to the advisability of suturing deep tears in the cervix as assiduously as one does deep tears of the perineum. J. M. Baldwin, of Philadelphia, however, believes that even in deep tears of the cervix if the parts are preserved from infection the greater part will heal. In spite of a growing tendency to repair lacerations of the cervix immediately, he still held to the treatment of rigid local cleanliness and soiling else.

Blund Sutton calls attention to the fact that all uterine fibromata originate from the cervix, growing usually in such a way as to occupy the cervical canal. He relates a number of cases, from which he draws the following conclusions: That menorrhagia and metrorrhagia are noticed only with the intra-cervical variety

and bear no relation to the size of the tumor. 2. Hemorrhages occur only with intra-cervical fibroids when the uterus has made attempts to extrude or has succeeded in extruding the tumor into the vagina. A partially extruded fibroid is very liable to become septic, which in turn may cause metrorrhagia.

Gottschalk offers a new operation for the removal of such fibromata for which he claims several advantages. He incises the vagina in situ and divides the neck of the uterus from the bladder and broad ligament. The posterior wall of the vagina is separated from the rectum. The tumor is then shelled out of the adjoining wall as far as possible by the finger and finally removed. The site of the tumor was pulled out and amputated, and the wounds made in the anterior and posterior vaginal walls were repaired with gut suture.

G. Winter has published his results in the fight against cancer of the uterus. He believes that not more radical methods but surely earlier diagnosis can promise to improve the lasting results of operative treatment for uterine cancer. He secured the help of physicians by applying to the district physicians, to the trained midwives, and to the public at large by specially written articles which were widely distributed by means of the daily newspapers. This was a systematic agitation, and at the end of one year Winter began to estimate the results. The operability of cases increased in his clinic from 71 per cent. in 1902 to 82 per cent. in 1903, and in the hands of other specialists operating in East Prussia from 62 per cent. to 65 per cent.

Mayo believes that the mortality from cancer of the uterus is undergoing a reduction. He believes also that better results can be hoped for only by activity on the part of physicians in making early diagnosis, and teaching among patients that they should present themselves promptly for operation when unusual symptoms as regards the genito-urinary tract are present."

Mayo does not recommend removal of the gall-bladder

in every case. In simple cases of stone with latent infection, the gall-bladder being in good condition, cholecystotomy is all that is necessary.

The finger is the only reliable guide in detecting stone in the common duct, and the best way to remove it is by opening into the duct wall with subsequent suturing. He lays stress, as do many others, upon the fact that the stone may be in the common duct causing symptoms, and for that reason the duct should be examined with great care.

Elsberg, of New York, gives the following indications for surgical treatment of gall-stones: "Operative interference is indicated in (1) acute inflammatory diseases of the gall-bladder with signs of severe infection or peritoneal invasion. (2) Cases with very frequent mild attacks which incapacitate the patient from work, which are accompanied by much loss of flesh and strength, or in which the patient is in danger of acquiring the morphine habit. (3) Persistent biliary fistula. (4) Rare cases in which the symptoms are due to adhesions of the normal gall-bladder to neighboring organs. (5) Chronic obstruction of the common bile duct.

Deaver discusses abdominal and vaginal hysterectomy. He does not advise vaginal hysterectomy except in the presence of obstacles necessitating such a cure. He does not think it is necessary to dissect out the iliac glands, as the additional mortality from operation is not repaid by lessened recurrence. Shantla, on the other hand, strongly indicates the vaginal route in hysterectomy for cancer. Oldshansen also prefers the vaginal route, until statistics extending over five years have proved that the abdominal method is better. Both these operators are of the opinion that to remove all glands in the pelvis after an abdominal hysterectomy is to subject the patient to a risk, which contraindicates the operation.

Fleishley reports a series of forty-eight cases of re-

removal of the uterus for cancer, in which there were four deaths. There were recurrences twenty-four times, and there were seventeen living after an interval of eight years, twelve free from recurrence after ten years, and nine living after thirteen years. This is better than Possi, who can report but two permanent cures in his two hundred cases. Fleishley lays great stress on the early diagnosis, and believes that his good results were due to this. Attention is called by several authors to the danger of malignancy developing in fibroid tumors, especially of the occurrence of sarcoma, which is believed by many to arise from the inclusion of sarcomatous tissue.

Noble presents a table of degenerations and complications of fibroid tumors in a series of 1188 cases. He believes that fibroid tumors are a direct and predisposing cause of cancer of the cervix. He calls attention to the fact that the present ideas of fibroid tumors are exactly opposite to the classical teaching. At least one-third of the women in this table having fibroid tumors would have died had they not submitted to operation for the removal of the growth. He advocates supra-vaginal hysterectomy.*

Pfannenstiel gives the following special indications for removal of fibroid growths: 1. The absolute size of the tumor without the presence of pain; a size above a man's head may be the chief indication for operation, and much smaller in young persons, especially if the tumor be nodular, as operation will be necessary sooner or later, and may be required at a time when the chances are less favorable. 2. Tumors which evoke severe pain. 3. Submucous myoma with bleeding. 4. Deep seated, growing myoma, especially subvesical causing compression of the urethra and later threatening grave injury to veins, etc. 5. Pedunculations, subserous tumors inclining to torsion of pedicle. 6. All rapidly growing tumors, on account of the possibility of becoming sarcomatous. 7. Complicated cases in so far

as the complication is conditioned upon the myoma. The best time for operation is the pre-menstrual period. Conservative myotomy may be employed for submucous myoma or polypus of the cervix. Large intestinal, also multiple tumors, and diffuse adenomyoma should be completely extirpated without reference to the functions of the uterus, as in such cases we must choose the method which best protects the patient. In regard to mortality, there seems to be no essential difference in favor of the vaginal over the abdominal total extirpation.

Winter believes the treatment of retroflexion of the uterus is the treatment of its symptoms and complications. He believes that surgical treatment is absolutely essential to a cure in the large proportion of cases. The Alexander operation for shortening the round ligament is the most reasonable procedure to adopt in suitable cases.

As regards ventro-suspension, there is still the same difference of opinion as in past years, many operators being utterly opposed to the operation under any circumstances, others always performing it, and others only when diseases of the adnexa require a coincident treatment.

Gerrard believes that interference with subsequent labor is not a complication of ventro-suspension if the operation is properly carried out. In fifty-seven births among fifty-three cases who had ventro-suspension performed there were fifty-two spontaneous deliveries. Forceps were used five times for various causes. In two of the cases the uterus returned to its retroverted position after child-birth.

McLaren discusses one hundred and fifty-four cases operated upon for displacement showing that pregnancy had occurred twenty-five times in twenty-one cases. There were six miscarriages, but only two of these could be traced to the original operation.

Tornley believes that exploratory incision should be made where there is constant ovarian pain with exacer-

tations during the menstrual period, even if the ovary appears normal in size. He also advocates exploratory incision into the ovarian tissue, even if these organs are apparently normal in appearance, in the presence of pain. Cysts are in this way discovered and can be removed. Sixty-six cases are added by Heil to the seventy-five already collected of ovariectomy during pregnancy. The mortality is a trifle over two per cent., showing that the prognosis is not much influenced by the co-existing pregnancy. Pregnancy was interrupted in about twenty per cent. of the cases.

DISCUSSION.

Dr. Oliver C. Smith: Just a word, sir. I feel the time is so short that we ought not to take but five minutes for discussion. I think both of these papers have been of great and practical interest, both of them. We would do well to spend the rest of the afternoon discussing many of the points that have been brought up.

A word as to local anesthesia. I cannot understand how simply water or cocaine or eucaine can sufficiently anesthetize the anal sphincter, because the dilatation of the sphincter is as important as the removal of the hemorrhoids, and you cannot dilate a sphincter with local anesthesia.

As to drainage and as to washing pus cavities, for the past two years we have not been washing our abscess cavities, particularly in appendicitis work, but draining out naturally they generally, as Dr. Murphy says, (Dr. Cheney quoted him) put in a wick drain, not gauze, but always wick, cylinders of rubber tissue filled with gauze, the ordinary cigarette drain, and allow it to drain. We believe abscesses in other parts of the body do better not to wash them as we did a few years ago. Now at the hospital we have had several consecutive recoveries in free pus cases, while previously when we used saline solution irrigation these cases were more

fatal. Whether these results were due to the shock of greater handling of the intestines, and the length of time consumed in irrigation, or whether the washing destroyed the protecting epithelium on the peritoneal surfaces, I am not sure, but I believe both had their effects.

As to rectal drainage in case of appendicitis, I think that is a very unfortunate thing to be obliged to do. Vaginal drainage is a great help where there is pus in the pelvis. Draining through the rectum, which would be practiced only in the male, is a much less desirable procedure, and should only be practiced where other means of drainage prove inadequate. The objections to rectal drainage are these: You convert the wound into a fecal fistula; the tube which passes out from the wound through the rectum and anus interferes with the expulsion of gas, and when an enema is administered the fluid passes into the abdominal cavity. Better make multiple incisions in the abdominal wall.

The President: I think the subject is of intense interest. I want to make one reply to Dr. Smith with regard to drainage through the rectum. Of course it refers only to males, but, I am satisfied that during the past year I saved three lives absolutely by that, and I don't think anything else would have done it. The abscesses were in the pelvis, of course, and, lying down as they were alongside of the rectum, I don't see why you can't go the shortest way and get out just as quick as you can. I have had no trouble in washing through. In one case several years ago I carried my drainage back through from the abdominal wall into the rectum, and I am satisfied good results came from it. The improvement was immediate, as soon as the pus was out of the pelvis, and the recovery went on uneventfully from that. I wouldn't want to have a great many separate holes cut in my abdomen when you can get out in one.

Dr. Howe: I noticed a few days ago in an article some experiments on the use of the catheter in washing the abdominal cavity with a watery solution, and it was

stated in that article that it was impossible to wash the abdominal cavity out thoroughly without leaving a quantity of fluid in the pelvis. Therefore, according to my notion of cases of the abdomen requiring abdominal lavage to any great extent, you should have also a pelvic draining. I think that ground is taken by quite a number of surgeons to-day, where it is necessary to use a large amount of water, sufficient to flood out the pelvis and the abdominal cavity, that you must use a pelvic drain to be absolutely sure of getting your cavity clean.

THE TREATMENT OF MALIGNANT DISEASE IN-
CLUDING A REPORT OF OVER ONE HUNDRED
CASES PERMANENTLY CURED BY
SURGICAL OPERATION.

FREDERIC S. DENNIS, M.D., F.R.C.S.,

NEW YORK.

The word cure as applied to malignant disease appears to be a misnomer. If a disease is really malignant it is from the nature of things impossible to effect a cure. Malignant tumors if left alone invariably lead to death. They are often cured by operation and in proof of this statement the following report is made. All of these cases published in this article were malignant, in the sense that they would destroy life if left alone and were proved malignant by a skilled and well-known pathologist; but with surgical interference they have been cured. It is not so much a question of statistics as to the percentage of cures, as it is a question whether malignant tumors can be permanently eradicated from the system. It is a source of consolation to a patient who is suffering from cancer or sarcoma, to feel that there is a chance of recovery, although he or she may be afflicted with a generally accepted fatal malady. The term cancer carries with it a death-knell to the laity. If it can be demonstrated that cures can be effected in malignant disease, the hopes of the patient are not utterly destroyed. These cases are reported to demonstrate the fact that cures can be accomplished, and especially to point out the way of escape from certain death. In the man-

agement of malignant disease there is no half-way course. There must be no delay in adopting the only way of escape. Surgical interference in order to be successful, must be early and radical, otherwise no hope can be offered to the sufferer. No other plan of treatment offers the patient so much certainty of security. A surgical operation is the surest plan that offers to the patient hope. All other methods are too unreliable, and the delay necessitated by the application of such methods jeopardises the life of the patient. This emphasizes the importance of prompt recognition of the malady on the part of the practitioner, and the thoroughness of the operation on the part of the surgeon. The question as to what is meant by cure is one that demands consideration. It does not mean recovery from the operation itself or immunity for months. It means in every case a recovery from the operation and a cure for at least from three to five years. If the cure can not stand the test of this Procrustean rule, it is of no avail. It occasionally happens that even after five years of immunity a recurrence may take place, or a new outbreak may possibly occur; but these cases are so rare that they can be almost eliminated. In other words if a patient has no evidences of the disease after five years of immunity he or she can feel comparatively safe from any new invasion.

Before discussing the results of treatment of malignant disease by surgical interference it is pertinent at this point to consider some of the other methods now in vogue. This seems necessary in order to give a relative importance to the various methods of treatment at present employed where operative interference is contra-indicated. In other words surgical operation, if practicable, is the first, most important, most reliable method to consider in every case. If the operation is not possible then one or all of the other methods can be tried. The surgical operation must take precedence of all other methods and in the event of failure, resource to these

methods is justifiable. The X-Ray in my experience is utterly incapable to effect a cure in cancer of the viscera and only in exceptional cases a cure in sarcoma. This method causes a temporary relief in some cases and in others actually aggravates the condition, by inflammatory action.

I am fully aware that cases have been reported of late where epithelioma has been cured by the X-Ray. In one article a surgeon has reported over forty cases of epithelioma of the skin cured by the X-Ray. Not one of these cases have any microscopical report appended, and in this list only six reached the three year limit. Two very important factors in order to place these cases in the category of cures are wanting. First the absence of a microscopical examination, and second the failure to reach the three-year limit of time. The same author reports about a dozen cases of cancer of the breast with no microscopical examination recorded, and not a single one that had reached the three year limit. These facts make these cases valueless as a basis upon which to study results. Many of the cases may have been benign, specific, or lupoid, the latter of which can be cured by the X-Ray. There is no one who can tell by inspection that an ulcer is positively malignant. It is therefore necessary to have microscopical proof of the character of the ulcer under consideration in order to study intelligently the result and it is likewise necessary to wait at least three years before it can be demonstrated that the cancer is cured. The X-Ray is a force that should not be employed by one who is not an expert in its use; because its employment even by the best men, has been followed by violent dermatitis, by ulcers that fail to heal and that finally became the starting point of epithelioma. In a recent article by Pusey some interesting clinical facts have been brought out in connection with the X-Ray which are worthy of mention. He thinks that the X-Ray is not suitable for carcinomata where the adjacent lymph nodes are involved. It is also futile in cancer of the

neck or of the viscera. In recurrent carcinoma of the breast alleviation of suffering for a few months has followed the X-Ray treatment but no cures have followed a year's test. In primary carcinoma of the breast no authentic case has been permanently cured, but if for any reason no operation can be performed the X-Ray is certainly worthy of trial. In cancer of the abdomen and pelvis no permanent cures are recorded but as in the primary cancer of the breast a retardation of the growth has been observed, an alleviation of the suffering has been accomplished and a temporary respite only secured but actual cures bearing the stamp of permanency have not been reported. These facts are mentioned not to discourage the use of the X-Ray in any inoperable cases; but only to furnish an honest statement of what can be expected from this therapeutical agent as it has been employed up to the present time.

In a study of the cases of cancer of the breast supposed to be cured by the X-Rays some one thing or another places the cases out of the list of what may be called permanently cured. It may be that the tumor was not subjected to microscopical examination, or the patient died within a year of an intercurrent affection and at the post-mortem the cancer was found absent and in its place a small fibrous mass was present, or the patient from the necessity of the case had not been free long enough to state positively that a cure has been effected, or some other defective point in the history so that sufficient time since the application of the X-Ray has not elapsed to afford examples of genuine carcinoma cured from three to five years. In a recent paper published by Dr. Coley, he reports one hundred and seventy-five cases of cancer and sarcoma treated by the X-Ray in which it appears that not a single case has been cured. This report emphasizes again the fact that the treatment of malignant disease by the X-Ray is not satisfactory as regards permanent cure, which is the only object desired.

Radium is a new therapeutic measure, the value of which is an unknown quantity. This is even conceded by those who have used it most extensively in the treatment of malignant disease. It is a force that is most powerful and the permanency of the cures claimed by its advocates is not yet determined. I do not wish to place myself on record as depreciating in any way the use of radium or any of these agencies; I only contend that they have their limited use in certain varieties of malignant ulcers and that in no case should they take the place of a surgical procedure, except where the case is inoperable. The important clinical fact must not be lost sight of that in nearly all these cases like the report of permanent cures by the X-Ray or those cases of reported cure by Radium, a microscopical examination is wanting to prove the diagnosis correct. This seems absolutely necessary since tuberculous ulcer is healed by the X-Ray or Radium, and also because sufficient time has not yet elapsed to test the permanency of the cure. The almost uniform improvement in malignant disease of the abdomen following the application of the X-Ray or Radium must not be mistaken for cure. Without doubt improvement follows and in one case mentioned in a recent personal interview with Dr. Roswell Park, the patient, a lady, was bedridden with a malignant tumor of the abdomen and who was sufficiently benefited by the X-Ray treatment so as to be up and about and was subsequently married and finally died of the malignant disease in about one year.

The Serum treatment of malignant disease must be still held sub-judice. It fails to cure cancer in any form; but it has succeeded in the hands of some surgeons in effecting a cure in certain varieties of sarcoma.

The Finson light is efficacious in curing at least temporarily certain infective cutaneous ulcers notably lupus. This is accomplished by means of a light which can be employed without accompanying heat by causing an inflammation of moderate intensity upon the skin. San-

light fails to destroy bacteria, owing to the presence of heat while the Finson light, deprived of heat may effect a cure.

The Thyroid extract likewise fails to cure but it will relieve pain, control hemorrhages and prolong life. All these methods are usually valueless to effect a permanent cure, and should be employed when the surgeon's knife can not be used. Under such conditions the patient is anxious that something should be done even if there is a ray of hope for the amelioration of the terrible sufferings incident to the disease, and then these various methods should be tried. These criticisms may appear too sweeping, and in time may have to be in a measure retracted in consequence of some new improvement in the use of any of these means. Up to the present time the employment of these remedies is not satisfactory; perhaps later new methods or modifications, or improvements, or even new discoveries may cause a change of opinion. On the other hand all these criticisms are by no means meant to deprive any patient suffering from malignant disease, of a trial of the various measures. They are only made to impress the practitioner with the fact that a primary resort to these measures instead of the knife is withholding from the patient the most reliable and uniform means of escape.

The treatment of the malignant disease may for convenience of description be divided according to the stage of the malady into,

First. The prophylactic treatment of benign tumors in the pre-malignant stage.

Second. The palliative treatment of malignant tumors in the late stage.

Third. The radical treatment of malignant tumors in the early stage.

First. The prophylactic treatment of benign neoplasms in the pre-malignant stage. In a discussion of this part of our subject the question of etiology, infectivity, heredity and other allied subjects relative to

tumors does not interest us. It is the preventive treatment of malignant disease that concerns us under this first heading. Every abnormal growth in the body is due to either disturbed nutrition, or to traumatism or to degeneration of tissues which by senile changes have performed their function, or to the loss of physiological activity or to the presence of continued irritation, or to the existence of benign growths, or to senile-decadence and possibly to microtöic infection, although this latter statement has not been proven. Illustrations of this law may throw some light upon the subject, the varicose or other kinds of ulcers in poorly nourished tissue, the gummatous induration, cysts and adenomata of the breast and the chronic interstitial mastitis, the atrophy of the testicle, the clay pipe irritation of the lower lip, the traumatism of bone, are examples of growths which at first may be benign but later malignant. It is the removal of these abnormal benign neoplasms that forms the essential factor in the prophylactic treatment. At just this point it is often urged that removal of such indurations or benign growths are not indicated for the simple reason that they are harmless. They may be harmless if they remained so but no one can assert that they will remain harmless, and after all it is better to run the minimum risk of aseptic operation, than to take the maximum risk of the danger of malignant degeneration. In no way can a patient be in a worse condition if a wart is removed or an indurated ulcer cut out, or a papilloma excised, or an elongated peyore removed or an irritable wart dissected out, for all of these conditions precede malignant disease. To go still more extensively into the subject, in no way can a patient be worse if gall-stones are removed even though they give rise to no special symptoms since it has been shown that in statistics collected by various authorities from 69 per cent, the lowest, to 100 per cent, the highest, cancer of the gall-bladder, a fatal disease, has been preceded by the presence of gall-stones, the removal of which source

of irritation has been attended by about 1 per cent. of mortality, as contrasted with nearly 100 per cent. mortality if cancer supervenes. The most recent advances in the surgery of the twentieth century has opened up another entirely new field for operative interference to prevent cancer of the stomach, a region in which this disease is most frequent. Chronic ulcer of the stomach has been demonstrated to be a favorable condition for the development of cancer of the stomach. Mayo Robson estimates that chronic ulcer was the starting point of cancer of the stomach in nearly 60 per cent. of his cases. The inference, therefore, is plain that excision of ulcer of the stomach is indicated or else drainage of the viscus by gastro-enterostomy. The prophylactic treatment in these cases will prevent the development of cancer. The lacerated cervix is often the starting point of epithelioma, and if any ulceration is present, or the cicatricial tissue is hard and indurated the operation of repair of the laceration will remove the danger of epithelioma of the cervix. This same principle applies to the soft myoma of the uterus, to adenoma, to mucous polypus in the uterine cavity, also to fibroids of the uterus, that give rise to pressure symptoms, to papilloma and cyst of the ovary also to ulcer of the bowel and notably to those found in the rectum and sigmoid too high up to be reached by palpation, but whose presence is demonstrated by the sigmoidoscope. The papilloma, the ulcerating hemorrhoid, the rectal fistula, should be operated upon lest these conditions lead to the formation of epithelial ulcers. In my experience no growth or neoplasm or tumor should be left in the body if they are accessible to the knife, because they are apt, and in a large majority of cases are likely to become malignant when the proper time arrives. This statement does not of course include gonorrhea, which are cured by potash and mercury, but if left without the anti-syphilitic treatment, may under certain conditions be transformed into malignant disease. An example of this is found in can-

cor of the tongue, which is always associated with syphilis in any other part or organ of the body. Tubercular ulcers also should be removed on account of the danger of general tuberculosis.

It has been my sad experience to witness an adenoma degenerate into an adenocarcinoma over and over again, and to have demonstrated this change actually going on in the growth removed; likewise a lipoma breaks down and forms a centre of acute infection; also a chondroma to assume a type of mixed tumor forming a malignant mesenchyma; an osteoma to change into an osteosarcoma, benign cyst-walls to be the starting point of epithelial cancer, infective processes to be the cause of general infection, pigmented moles to be a nucleus for malignant ulcers, vascular growths to be changed into malignant types of disease and tubercular ulcers to be transformed into centres of general infection. These are not fantastic views, but facts over and over again demonstrated in cases that have been operated upon during the transition period, and also after the complete change has been made. Surgery has gained a partial mastery over the so-called malignant disease; and it has gained a complete victory over the benign growths, whose trend is unmistakably towards the malignancy as age advances and waste atrophies and degenerations become established. All arguments in the past to the effect that these prophylactic operations are attended with danger from shock, pain, sepsis, and hemorrhage are removed by the employment of the perfected technique of modern surgery. Shock and pain are eliminated by celerity of operation and anesthesia, sepsis is prevented by antiseptic surgery, and hemorrhage controlled by modern methods.

All benign tumors should be removed provided this can be done with safety. If too great a risk to life is involved they may be allowed to remain. The situation of a benign tumor, the condition of the patient's viscera, the presence of hemophilia, the clinical environments,

all influence the question of the removal of benign growths, whereas, none of these conditions unless present to an extreme degree should prevent surgical interference in malignant disease. There are certain operations adapted to every case, thus for example in simple adenoma of the breast in a young girl the complete ablation of the breast is unjustifiable because the disease itself does not require such heroic measures and the mutilation is uncalled for and yet something must be done to relieve the condition. In such cases the writer has on many occasions made an incision under the breast and thrown the whole gland upwards upon the thorax with a hinge formed of skin connective and fatty tissue, and attacked the adenoma from the posterior surface, and then folded back the virgin breast into its proper position and sutured it along the fold under the breast so that the line of union is not visible and the contour of the breast is preserved. There are cases where this operation has been done by the writer, and the young women have since married and have nursed children from the breasts from which the adenoma has been removed. Such a procedure could be undertaken only in benign tumors, and this method of operation removes the disease, does not destroy the future function of the gland and preserves the symmetry and contour of the breast. Many varieties of benign tumors can thus be removed without the sacrifice of the functional activity of the organ involved. The same may be said of warts, moles, papillomata, fibromata, in fact all benign neoplasms as well as those which may be termed benign with a trend of degeneration toward malignancy. Another example of the prophylactic treatment of benign disease which often precedes cancer of the breast is observed in eczema of the nipple, a condition that deserves special consideration owing to the danger of "Paget's disease of the nipple" which in turn gives rise to a variety of cancer which in my experience is one of the most fatal forms of cancer of the breast. This

eczematous condition of the nipple must not be overlooked, and too much emphasis cannot be placed upon the relief of this pathological condition in order to prevent cancer of the breast.

Second. The palliative treatment of malignant tumors in the late stage. The palliative treatment presents a melancholy picture both to the sufferer and to the surgeon. Its employment is a certain recognition of defeat, its adoption is a temporary measure of relief, its practice is a tacit confession of failure; still with the terrible conditions present it is the only resource alike to patient and surgeon. Palliative treatment can not cure, it can only relieve pain, it can afford physical comfort, it can supply a source of nutrition, and perhaps prolong life. The operation of gastrostomy in cancer of the esophagus, or gastro-enterostomy in cancer of the stomach or enterostomy in cancer of the bowel, or colostomy in cancer of the rectum, or short circuiting in cancer of the ileocecal region, or of the gall-bladder or drainage in a cancer of the pancreas, or of the peritoneal cavity in cancer of the omentum and mesentery are the examples of the various applications of the palliative treatment of malignant disease. It may be said of what avail are these temporary measures? Does the comfort of the palliative operation compensate for enough relief to justify these procedures? The answer to such a query can only be found at the bedside. To relieve the horrible sufferings of persistent nausea, the intolerable distress of continuous vomiting, the excruciating pangs of prolonged starvation, the terrible shock of constant pain, the keen distress of abdominal tension, the indescribable tortures of protracted insomnia, the unparalleled agony of a living death, are all worthy of consideration. If any operative interference can remove such a chain of distressing symptoms it is emphatically called for, even though the measure is not a curative one. It is just as much the duty of the surgeon to relieve bodily suffering as it is to permanently cure, and with this

object in view the palliative treatment of malignant disease must not be omitted.

Third. The radical treatment of malignant tumors in the early stage. The discussion of this part of the subject is the most important of all. By radical treatment is meant the removal of the entire malignant growth and also the removal of tissues in close juxtaposition together with the neighboring lymphatic nodes. Furthermore, the radical treatment means all this and in addition its early employment at the time when the malignant tumor is essentially local. The radical treatment conducted along the lines just described and at the period just mentioned offers the greatest security to the patient. Incomplete operations performed at a late period offer to the patient no hope. The radical treatment becomes then a simple question, stripped of all complexity and requiring only one essential condition. Another important question in connection with the treatment of malignant disease is that of recurrent operation. Of late some surgeons of almost undisputed authority have advocated non-interference in cases of recurrence of malignant disease. In reference to this question the writer contends that in nearly every case of secondary recurrence, operation should be resorted to provided there is prospect of complete removal of the recurrent growth, and provided also the patient's physical condition justifies the performance of the operation. The writer has been surprised at the results obtained by repeated operations upon the same patient who suffers from recurrence. In one case there was an amputation of the breast fourteen years ago, and after many years a return occurred in the axilla which was promptly removed, and at the present time there appears no evidences of the disease in the region of the secondary operation. It is to be regretted, however, that a metastasis occurred in the lung and pleura, and a large quantity of bloody fluid was withdrawn by aspiration. Before the paracentesis the patient suffered greatly from

dyspnea, had a rapid pulse and showed evidences of great bodily prostration. The withdrawal of bloody fluid was followed by instant relief. Her pulse improved, her appetite returned, and for over two years she has been up and about and seems to enjoy life with no distress from her lung. In another case I performed an amputation of a breast eighteen years ago and the patient has been entirely free and is at the present time, from a return in the region where the breast was removed eighteen years ago. This patient consulted me within two months on account of an injury to her remaining breast. She thought she had injured her breast by a fall while stepping out of the bath-tub. I felt an induration and advised an immediate operation because there was evidence of faint dimpling of the skin and a slight retraction of the nipple and more especially because of the fact that eighteen years ago I removed one breast for cancer. The patient was reluctant to submit to the operation and consulted three other surgeons who thought the operation unnecessary. She however, consented and I removed the breast in which was found a small carcinoma. The physical examination alone of the breast did not justify a surgeon in performing an amputation in this patient who was very stout, and had a weak heart and some kidney disturbance. It was the antecedent history of the patient that forced me to the conclusion that operation must be done and it was done and a cancer found by the microscopist, the removal of which ought to give her immunity as it did in the previous operation.

In still another case the writer has operated upwards of forty times covering a period of fifteen years and to-day the patient is alive and apparently well. There has been no recurrence for a long time and with every prospect of a future cure. This case is one of myxoma with a degeneration of the neoplasm into sarcoma. The breast was amputated, the glands in the axilla extirpated, the recurrent myxomata upon the abdomen and pelvis

and thighs excised and finally these oft repeated operations have resulted after many grave operations in cure. The patient desired to live and was willing to submit to these repeated operations because she failed to discover a return in the region of a previous operation. This case illustrates the value of repeated, radical and early operations and her heroic pluck demonstrated by her willingness to submit to so many operations has been rewarded with a final success. This case is illustrative of a type where repeated operations may be followed by a permanent cure.

I will now report in a brief manner the one hundred cases of malignant disease permanently cured by radical operation. In every case reported there is a full complete written microscopical examination by a recognized expert pathologist so that there is no possible error in reporting a benign growth for a malignant one. To follow up these cases has been a most laborious and unusual task, and yet in each case this has been done. There are many additional cases in my list where an operation has been performed and where there is every reason to believe the patients are alive and free from malignant disease at the present time. The positive proof is absent and therefore they will not be included in the list.

In the list of one hundred cases there are thirty-nine cases of cancer of the breast. All of these cases have lived beyond the three years limit of time. One patient has lived twenty-five years and in a very recent communication I am informed by her physician, Dr. Johnston, of Blairstown, New Jersey, that she is well and free from any signs of cancer. Another patient has lived nineteen years, one seventeen years, one fifteen years, three fourteen years, and the rest have lived and are free from disease at the present time from six to thirteen years. Now outside of this list of thirty-nine cases which are embraced in the one hundred cases there are many others who have not quite reached the three years'

limit of time, but who nevertheless, enjoy immunity from the disease. In this recent list there are two patients who were eighty-two and eighty-five years old respectively, and who are well to-day and have no return of the disease. There are two cases of special interest in this extra list where nearly three years have elapsed, and who are free from any recurrence and who were operated upon not because there was any reason to believe that a cure could be effected; but to prevent hemorrhage and pain and the disagreeable sequelae of a foul and fungus breast, and still these cases are entirely well, and with no evidence of a return. In other words the most hopeless cases of cancer of the breast occasionally recover when humanly speaking the slightest hope could not be entertained. I was convinced that a study of cures in cancer of the breast from a percentage point of view only, has created a very false impression among surgeons, and a most depressing effect upon the laity. The all important question for the surgeon and the patient is, can a cure be effected, and if it can be shown that such a thing is possible, the surgeon and the patient will naturally become hopeful. The clinical picture of cancer of the breast has been so drawn in past years as to create a most unfavorable impression. Early operation and radical operation will efface this gloomy picture, and in its place one can be drawn that will inspire hope to these unfortunate victims of disease.

In the list of one hundred cases which have been selected for study there are twenty-two cases of carcinoma of the skin. In some of these cases so severe a measure as amputation of the limb was resorted to, and in all of them the three years limit of time has been reached. In one case twenty-five years have elapsed since the operation, in another case twenty-four years, in another twenty-three years, four of them between eleven and seventeen years, and the balance from eight to ten years.

There was one case of carcinoma of the rectum and ileum in which I resected from six to eight inches of the

bowel, and subsequently established the continuity of the canal by means of the Murphy button. This operation was performed about seven years ago and in a recent communication from his physician I am informed that the patient is perfectly well and has resumed his occupation as an engineer.

There was also one case of epithelioma of the prepuce and glands in which I performed a complete amputation. This operation was performed more than nineteen years ago, and the patient is still alive with no return of the disease. He is a captain of one of the large Atlantic liners, and has followed his avocation as commander ever since the operation and is still at his post of duty. During the long period of time since the operation a small tumor appeared in the thigh. The patient was very much depressed and suffered from melancholia due to the presence of what he thought to be a recurrence of his cancer. The tumor, which was about the size of a pigeon's egg, was removed and the examination of it revealed the fact that it was only a simple lipoma. He was immediately relieved of his mental depression, and after two weeks returned to his position, where he is still in active service.

To refuse to operate for recurrent growth in this patient would have deprived him of peace of mind. His mental disturbance became so pronounced as to threaten chronic melancholia but fortunately for him the recurrence was not malignant. If the growth, however, which was mistaken by him and by the writer until it was removed and examined for a metastasis of his cancer had not been removed, fears might justly have been entertained of self-destruction, which indeed he considered.

In this list of one hundred cases of malignant disease which have been set aside for study and investigation, there are six cases of sarcoma of the breast. Every one of these cases has been followed far beyond the three year limit of time. In one case of sarcoma of the breast I operated over twenty-five years ago, and her family

physician whom I saw not long ago, states that she is perfectly well and with no return of the disease. Another case I operated on twenty-one years ago, another nineteen years ago, and the balance between five and sixteen years ago. All of these cases are alive and well and with no return of the disease.

In this list of one hundred cases of malignant disease permanently cured by surgical operation there are six cases of sarcoma of the skin. All of them have passed the three years limit of time. One has lived twenty years, another eighteen years, another seven years, two six years and one five years.

In this list of one hundred cases of malignant disease there were two cases of sarcoma of fascia, one of which involved the popliteal fascia and was operated upon nineteen years ago and recently her son reports her well and free from any return of the disease. The other case was sarcoma of the fascia of the finger. This patient was operated upon three years ago, and was seen within a week. She was perfectly well and with no evidences of any return of the disease.

In the list of one hundred cases of malignant disease cured there were seventeen cases of sarcoma of bone in which nearly all of the patients were subjected to amputation of the affected limb, if a long or short bone was involved, or to a resection where the superior maxilla or other similar bones were involved. A careful study of these seventeen cases affords a most valuable illustration of the efficacy of radical operation in sarcoma of bone, a type of malignant disease which, in my judgment is more rapidly fatal than cancer under certain conditions. In this list of sarcoma of the bone one case of amputation of the leg for round cell sarcoma has lived twenty-three years, and is to-day perfectly free from the disease, another lived twenty-one years, and quite recently I saw him and he was free from any return of the disease. Another has lived eighteen years following an amputation of the leg. Another about fifteen years

and the balance have lived from nine to thirteen years following amputation or resection according to whether it was a long bone of the extremity in which amputation was resorted to or one of the bones of the face where a resection of the entire bone was made. This series of sarcoma of bone furnishes the most gratifying results of treatment in malignant disease. This is especially true in view of the statement made by Radlin, the eminent English authority on the treatment of malignant disease, who says that 98 per cent. of sarcoma of bone are fatal. This single allusion to percentages is mentioned on this one occasion in this paper to show how unreliable a guide statistics are to estimate a cure in any given case of sarcoma of bone. In the list of one hundred cases which have been set aside for consideration there are six cases of sarcoma of glands, and they have all passed the three years limit of time. One case was a prominent physician in the State of Connecticut upon whom I operated over twenty years ago. He is alive, free from the disease and is at present in active practice in one of the provincial towns in the State. Another case was sarcoma of the parotid glands in which amputation of the middle of the thigh was resorted to in order to remove all of the disease. This operation was performed over twenty years ago, and I have seen the patient within a few months, and he has never had any return of the disease and is perfectly well. The remaining four cases were operated upon from five to nineteen years ago and are well and free from the disease at the present time.

In concluding this paper on the treatment of malignant disease I would, even at the expense of repetition, impress upon the members of this Society, several important facts.

First. The early recognition of a benign tumor and its prompt removal to prevent the occurrence of malignant disease.

Second. The early recognition of a malignant tumor

and its immediate removal by a radical operation at a time when the disease is local.

Third. The performance of secondary operations as long as the disease can be removed entirely and safely, and the patient is willing to submit to the treatment.

Fourth. The employment of other means than operation only when the tumor is inoperable.

Fifth. The sense of responsibility which involves upon every practitioner to recommend that course to his patient which offers the best hope of permanent cure.

RADICAL OPERATION FOR MAMMARY CARCINOMA.

WILLIAM F. VERDE, M.D.,

NEW YORK.

The *complete or radical operation for cancer of the breast* was the direct result of the investigations of Heidenhain of Berlin.¹ It was his opinion that the frequent recurrences after breast amputation were due to microscopically invisible remnants, either of a portion of the breast proper or of the tumor itself. His exhaustive article upon the cause of local recurrence of cancer after breast amputation is well worth the study of every surgeon. This article can be found in the *Verhandlungen der Deutschen Gesellschaft für Chirurgie* 18th Congress 1889.

Operations for cancer of the breast have been performed for years, and notwithstanding the dismal failures to effect a permanent cure, the operations have never been abandoned.

A proper understanding of the dissemination of cancer, necessarily presupposes a full knowledge of the lymphatics of the region involved. We know that dissemination takes place by means of the lymphatics. The cellular elements are carried along in the lymph plasma and are deposited in the nearest glands to which the lymphatics lead. This is not true of the other variety of malignant tumors, the sarcomata. They represent the embryonic type of connective tissue and they are disseminated by conversion of their cellular elements through the blood vessels. That with cancers the nearest lymph nodes were early involved, was observed long before their exact pathological structure was known.

On account of their extreme delicacy, the lymphatic

vessels did not lend themselves readily to accurate investigation. The injection methods used in the study of the arteries and veins could not be employed with these structures. Hence the exact study of cancerous dissemination was delayed until methods were devised for the proper study of the lymphatic vessels.

To Sappey is due the credit of our most exact information regarding the structure and course of the lymphatic system.

Aside from the method of dissemination by the lymphatics, which must be considered the most important, cancers may also spread by contiguity of tissue and by direct transplantation. Clinical observations have proved that small particles of cancer tissue, entering into healthy tissue of an affected individual, can there produce the same growth. Kraske gives a résumé of the special literature on this subject and relates two very interesting cases (*Centralblatt für Chirurgie*, p. 80, 1886).

Many observers have concluded with reference to the female breast that the very bad results and the very large numbers of local recurrences may in a measure be attributed to a re-infection of the wound by cells from the cut surface. These are supposed to be pressed out into the wound by the manipulations necessary for the removal of the growth.

Until 1875 practically nothing was known regarding the dissemination of cancer. In that year Volkmann published in the *Beitrage Zur Chirurgie*, his classical work upon the subject. His theories concerning the mode of extension and the description of his carefully planned operation for complete eradication are minutely recorded. Until 1894 there was no other operation devised which could equal it in thoroughness.

That cancer of the breast begins as a local disease there can be no question. This fact recent percentages of cures have established. But statistics of all surgeons until the more modern operation was devised were most

glossy. The difficulties encountered were numerous, leaving aside those cases lost through septicaemia, erysipelas, pulmonary embolus, thrombosis and other complications. It was not possible in the vast majority of cases to prevent even local recurrences. German statistics show that only 17.2 per cent. of the women operated upon remained free from local recurrence. This means about one out of six cases. Our own American surgeon Gross was able to collect 1842 cases in which he could obtain positive data. Of this number he found that only 11.81 per cent. remained free from recurrence three years and only 2.3 per cent. were free more than that time. (*American Journal Medical Sciences*-1888, March and April).

Assuming then that cancer begins as a local disease—why can it not be eradicated in those cases that present themselves for relief fairly early?

A proper investigation into the pathology of cancer and its mode of extension and dissemination should reveal the cause for such unpromising statistics. A great deal depends upon the structure and the physiological properties of the cancerous organ, for example its function, its blood supply, and more especially its lymphatic circulation. Clinical observations have confined the varying degrees of malignancy of cancerous process to the different organs involved. We need only mention in this connection the benignity of the skin cancers of the face, with exception of cancer of the lip, the relatively malignant character of cancer of the tongue, larynx and stomach. These observations we have all of us had abundant opportunity to verify.

In all organs which are abundantly supplied with lymphatics cancer runs a most malignant course. Metastasis is rapid from these organs and extensive dissemination is almost simultaneous with the establishment of the disease.

Metastasis is an embolic process. It is therefore evident that the lymphatic glands which receive the lymph

from the breast most directly will be the first to be infected in mammary carcinoma. These are the glands of the axilla. They receive the greatest portion of the lymphatic vessels from the breast.

Metastasis in the anterior mediastinum is likely to occur from those cancers which involve the inner hemisphere of the breast near the sternum. These cases may be presumed, *a priori*, to offer the poorest chances for cure. The retrosternal glands drain a small portion of this region. They receive the lymphatics from the breast by passing directly through the pectoralis and intercostal muscles. The presence of the internal mammary chain of lymphatics was formerly denied by Sappey, though it had been observed long before by Mascagni and Cruikshank. More recently a number of observers have definitely proved its existence. These glands have been found to atrophy in elderly people so this may account for the relatively small number of direct metastasis to these glands. Retter's anatomical investigations throw light upon the manner in which metastasis of carcinoma of the breast develops. His observations have corroborated Grassman's in that the retropectoral glands may be involved very early in the disease without there being any nodules in the muscle or fascia.

Retter showed by carefully prepared specimens that twigs of the superior thoracic artery with their accompanying lymphatic vessels pass directly through the pectoral muscle in to the parenchyma of the breast and that in carcinoma lymphatic nodules along the posterior side of the pectoralis major might appear very early. This author found these retropectoral glands involved in about one-third of the cases. I have recently had an opportunity to verify this fact in a patient upon whom I operated for carcinoma of the breast about three weeks ago. The growth was of two years' standing, yet the axillary and infraclavicular glands were not involved as was proved by microscopic examination. The retro-

pectoral glands were, however, very large and showed cancerous infiltration.

These investigations have been again corroborated of late by Oelner in his work on the lymph channels of the breast in their relation to the extension of mammary cancer. He showed that trunks from the external hemisphere of the breast run toward the lymphatics along the free border of the pectoralis major.

The investigations of Ludwig and Schweigger-Seidel, have established the fact that there is universally throughout the body an intricate network of lymphatic vessels on the surface of all muscles and on the superficial surface of all fasciæ, the direction of the lymphatic current being in all cases from muscle to fascia and not the reverse.

Volkman, with rare acuteness of observation, as far back as 1875 noted the great difference in prognosis between cases involving the pectoral muscles by simple extension of the growth, and cases involving the muscle by metastasis. Ludwig pointed out that cellular elements when they have once entered the lymphatics of the muscular system are soon swept along in the lymphatic current by the muscular activity. Hence the reason for the difference in prognosis noted clinically by Volkman.

Volkman tried to offer an explanation for the fact that carcinoma might lie in masses on the fascia covering the muscle and be adherent to it and yet not involve the muscle beneath. He believed that the lymphatics did not penetrate the fascia covering the muscle and that they did not follow the blood vessels into the connective tissue-septa between the muscle bundles but without penetrating the covering of the muscle spread themselves out on the surface of the fascia itself. Heidenhain's observations confirmed this theory. His observations were again confirmed by the physiological investigations of Ludwig and Schweigger-Seidel on the lymphatic vessels of fascia and tendon.

Volkman was so convinced of the accuracy of his observations and theory that he devised an operation which was far superior to any previous method, was accepted by the foremost surgeons and practised in the best hospitals and clinics, owing to the fact that it was based on solid clinical and microscopical observation. Volkman's operation deservedly has held its own till the most recent times. In describing his operation he says: "In carcinoma, I make a complete and not a partial resection of the breast even in those cases where the nodule is very small. I remove the entire breast and skin covering the tumor. Furthermore, I carry my dissection down to the pectoralis major removing all its fascia, cleaning off its muscular bundles as I would for an anatomical demonstration. The reason for doing this is that I have repeatedly found in my histological examinations the fascia already carcinomatous while the muscle itself was free."

Volkman's radical procedure comprised the excision of most of the skin over the breast, dissecting back the skin flaps, leaving as little subcutaneous fat as was consistent with their integrity, the removal of the pectoral fascia and the removal of all the fat and areolar tissue of the axilla with the lymphatic glands. Volkman was the first to clean out the axillary fossa. Kuster, however, was the first who insisted upon this procedure being adopted in every case. In ninety-five cases where the axilla had been cleaned, Kuster saw but one recurrence in this region. Most other surgeons also agreed that the typical cleaning out of the axilla was almost certain to prevent axillary recurrence.

The great difficulty was the local recurrence in the region of the scar about the site of the original tumor. Schmidt, for example, reports ninety-five recurrences, seventy-one of which were local, fifty-nine, that is 71.4 per cent, purely local, while the others were combined with metastasis; and Botter found in thirty-four cases, thirty or 82.21 per cent, recurrences in loco. Schmidt

reports 22 cases operated upon by Kuster. In twenty-two of these cases, the tumor was adherent to the underlying parts. Not one of these cases (22) was cured.

Wherein then lies the fault in the technic of the operation? Why so many local recurrences?

There can be but three hypotheses entertained:

1st. The operation is not complete and carcinoma-tous cells are left behind.

2nd. The wound is reinfected from the cut surface by cancer cells which are expressed during the operative manipulations.

3rd. The carcinoma recommences *de novo*. A theory at first supported by Billroth.

Heidenhain observed that the tumor, in local recurrence, was found to be closely adherent to the pectoral muscle, even in very early and small recurrent growths. The recurrent nodule was not moveable over the muscle. This led him to believe that the principal trouble lay in the fact that cancer cells were left in the upper surface of the pectoralis major muscle. He reasoned that if this were so, he ought to be able to find traces of the tumor on the under surface of the amputated breast, that surface which was in contact with the muscle. This he succeeded in demonstrating. The pectoral fascia is so thin that it is an utter impossibility to remove it in its entirety. The great mistake which Volkmann and Kuster had made was in not removing the muscle altogether. Therefore, since it has been shown that the pectoral fascia is early involved there can be little hope for the patient, where the fascia is not removed.

The pectoral muscles should be removed in every case of cancer of the breast. Only in this way can we expect to reduce the number of local recurrences and prevent internal metastases.

Halsted and Meyer have both devised a special method of operating for this disease. It is not necessary to burden you with a description of these operations with which you are already familiar.

The operation as I have performed it is as follows. The incision begins in the depression formed by the insertion of the deltoid to the humerus near the attachment of the pectoralis major. It is carried along well above the free border of the pectoralis major encircling the breast, removing the entire skin covering it and ending in the upper part of the incision. This incision has the advantage of bringing the scar away from the axilla so that secondary contraction shall not increase the tendency to edema.

In this way two large flaps are created, an upper and a lower. The upper flap is dissected upward until the clavicle and the cephalic vein are exposed, which latter is the landmark, for the limit of the dissection. This vein is found lying in the superficial fascia, in the groove between the deltoid and pectoralis major. The lower flap is dissected downward, to the anterior border of the latissimus dorsi muscle. The next step is the division of the tendon of the pectoralis major, at its insertion on the humerus. The tendon is then caught with tenacular forceps and retracted downward and inward. The axillary vessels are laid bare and the axillary fossa is cleared of all its contents. Care must be taken not to injure the 2nd and 3rd subscapular nerves, these supply the *teres major* and *latissimus dorsi* muscles. Paralysis of these muscles would seriously impair the function of the arm afterwards. Now comes the division of the pectoralis minor muscle on the coracoid process. The infra-clavicular glands, fat, and areolar tissue in Mohrenheim's space are now removed.

After the above careful dissection the remainder of the operation is accomplished very quickly. The clavicular portion of the pectoralis major is divided close to the clavicle. Heidenhain recommends that the periosteum be removed along with the muscle. Then the sternal portion is divided and the whole mass is lifted from the thorax, laying bare the 2nd, 3rd and 4th ribs. After this has been done, the whole mass is rolled inward

and the dissection is carried upward, from the anterior border of the latissimus, laying bare the serratus magnus muscle, continuing the dissection toward the sternum, until the whole mass is removed.

Statistics would be more valuable if more attention was paid to the anatomical and histological character of each case. It appears that most persons compiling statistics lose sight of the necessity for classification of cases. The term cancer is a broad collective expression. It comprises growths of widely different histological structure and activity. It would also be of great importance to be able to draw some conclusions as regards the relation of the histological structure and metastasis. Whether for example a scirrhus cancer, rich in firm connective tissue stroma and poor in cells would give better chances for cure than those which are rich in cells and poor in stroma. This clinically has been demonstrated. The hard scirrhus do not produce metastasis as rapidly as the softer encephaloid variety. The rapidity of cell proliferation ought to be observed by every pathologist making examinations in these cases and this should be added to the clinical report. It makes considerable difference in the prognosis whether the mitotic cells are scanty or numerous.

Regarding ultimate results in cancer, I will again quote Volkmann's views as to what shall be called a radical cure: "I unhesitatingly make this statement, says he, for all cancers, that when a whole year has passed and the most careful examination can detect neither a local recurrence nor swollen glands nor any symptoms of internal disease, one may begin to hope that a permanent cure has been achieved, but after two years usually and after three years almost without exception, one may feel sure of the result."

Billroth thought that Volkmann expressed himself too cautiously and said: "I think that one may express himself more boldly and may declare that if the careful examination of an experienced surgeon detects no re-

currents when one year has passed since the operation, one may be sure that there will be neither a local nor a glandular recurrence and may pronounce the patient as radically cured."

Volkman made a truer prophecy, for recurrences after a year have been found to be common. Most surgeons have accepted Volkmann's views and do not consider a patient cured until three years have elapsed since the operation. The best results before the modern radical operation after three years are as follows:

Von Bergman, 30.2 per cent.; Billroth, 4.7 per cent.; Fisher, 9 per cent.; Gussenbauer, 16.7 per cent.; König, 22.5 per cent.; Küster, 21.5 per cent.; Lucke, 10.2 per cent.; Volkmann, 14 per cent.

In the last six years I have operated upon twelve patients for cancer of the breast. Four of these have died. The first case was hopeless on account of the magnitude of the growth; the operation was performed for relief only. The last case was operated upon only three weeks ago, so this case cannot have any bearing on these statistics. If we except the first and last cases, there remain ten cases from which some conclusion may properly be drawn. Three are dead; three have already passed the three years' limit of time and are in good physical condition. Of the remaining four cases, two have been operated upon over two years ago and are in good condition. There is no sign of either local recurrence or internal metastasis and there is at present no indication that they will not continue well. Most recurrences occur within the first year as happened in all those that died. The other two have been operated upon over one year and are also in good health. Of course positive conclusions cannot be drawn yet upon all of these cases. Four have not yet passed the limit of possible recurrence. However, if those cases remain without recurrence as they promise to at present, we would have 7 per cent. of cures.

Halsted in the report of his first fifty cases also in-

cluded in his statistics all those recently operated upon and the majority had not reached the limit of possible recurrence, three years.

The latest statistics which I am able to find have been published by Dennis in his dissertation "The History and Development of Surgery," delivered at St. Louis in 1904. He gives a report of his latest fifteen cases; thirteen cases of which the full subsequent history is known. Two of these died of a recurrence, one from hemophilia, the remaining ten cases are still living and have passed the three years' limit of time. This gives 77 per cent. of permanent cures.

It is unquestionable that this operation lessens the number of local recurrences very materially and increases to a large extent the percentage of cures. There is practically no danger from the operation itself. Not one of my cases died from the effect of the operation. Every case healed without suppuration. There were no other complications. Patients operated upon in this way suffer a little from edema of the arm and may have some difficulty in raising the arm to the back of the head.

If the incision is made as I have indicated well above the free border of the pectoralis major edema of the arm is not so likely to occur. Where the midaxillary incision is used edema is more likely on account of the contraction of the cicatrix.

Case 1. Mrs. K., aged forty-eight years; married; four children. About two years before coming under observation noticed a lump in right breast. The growth had been very rapid and had become ulcerated in last two months.

February 1, 1899. The tumor now is about as large as an orange and the skin over the upper half of the breast is badly ulcerated. The axillary glands are all involved and the patient has had a bad cough for several weeks. There is profuse expectoration and considerable dyspnea. This was a hopeless case to begin

with, but the tumor was so large and there was such a large area of ulceration that I operated for palliative reasons. A complete operation was made February 9, 1899. The axillary and infra-clavicular glands were removed along with both pectoral muscles. There was a large area which could not be closed in with skin and this was left to granulate. Recovery from operation was good and the patient obtained considerable relief from pain and her other discomforts. Recurrence in the wound and the skin in this region in about four months. Died from internal metastasis in about six months. In this case the prognosis was unfavorable from the start; only temporary relief was sought for and this was obtained. This case does not properly belong to the category under consideration and is reported only to show the effect of palliative treatment even in advanced cases.

Case II. Mrs. M., first June, 1900, aged about sixty years, married; three children; eight months ago noticed lump in right breast. Pain has been present for about four months. Good sized tumor in the upper outer quadrant. Skin not moveable over tumor. Nipple is retracted. Axillary glands enlarged and tender. June, 1900, complete operation was performed. Axillary and infra-clavicular glands together with both pectoral muscles removed. The patient is still living and in good health. There has been no sign of any recurrence yet.

Case III. Mrs. H., first seen in January, 1901; aged fifty-five years; married; four children. About sixteen months ago noticed a lump in left breast. Was under the care of another physician for several months who advised against an operation. Pain has been present constantly. Tumor increased in size slowly. January 15, 1901, tumor now size of hen's egg, adherent to the skin, situated in the lower outer quadrant. Nipple retracted axillary glands enlarged. Prognosis unfavorable. February 4, 1901, complete operation was performed. May, 1901, about three months later recurrence in the skin

below the scar about two inches from the line of union. This was excised. Died nine months after the operation from general metastasis. There was no further local or regional recurrence.

Case IV. Mrs. R., April, 1901; forty-eight years; married; no children. About twelve months ago noticed small tumor in breast. Slow growth and very hard. For past two months skin over the tumor began to ulcerate. Pains moderate and intermittent. Diagnosis cancer in the lower outer quadrant. Axillary glands moderately enlarged and tender. Nipple retracted. April 4, 1901, complete operation. Prognosis favorable. Discharged in about four weeks with wound entirely healed. The patient is now well, about four years since the operation. Good use of the arm. Some edema still persists. No local or regional recurrence.

Case V. Mrs. R., sixty years; married; no children. About two years before noticed swelling in right breast. Sharp lancing pains for several months. In last two or three months, ulceration set in. Retraction of nipple began over a year ago. Diagnosis cancer of right breast occupying half of the outer hemisphere. It is moveable over the pectoral muscle. Axillary glands very large and tender. Nipple retracted, remainder of breast atrophied. December 26, 1901, complete operation. Prognosis unfavorable. January 22, 1902, one month later recurrence in the scar about size of walnut. This was removed. Died May 22, 1904, over three years after the first operation from general carcinoma. There was no further recurrence in the scar or in the breast region.

N. B. This is an interesting case. After the recurrence in the scar so soon after the operation, there was no further recurrence in this region. Yet she lived over three years with cancer involving her lungs, liver and spine, symptoms of which came on six months before death.

Case VI. Mrs. D., thirty-eight years old; married; one

child. About three months ago noticed lump in left breast. Rapid growth. Moderate pains lancinating in character. Nipple is not contracted. Diagnosis cancer of left breast, upper outer quadrant. Axillary glands cannot be felt. Consultation with Dr. Carmalt. Diagnosis confirmed. August 27, 1902, radical operation. Patient at present is in good health. Has no difficulty with motion of arm, nor is there any edema. No local or regionary recurrence.

Case VII. Miss H., single, school teacher, forty years old. About eight months ago, noticed tumor in left breast. Rapid growth. Pains are only moderate, not marked. Diagnosis of cancer of left breast. Tumor about the size of an egg, adherent to the skin but moveable over pectoralis. Nipple is retracted. Axillary glands enlarged. February 8, 1903, radical operation; axillary and infra-clavicular glands removed. Microscopic examination reported to be infected. Prognosis was guarded. It is now two years and four months and patient is in good health, teaches school every day and has no difficulty whatever with her arm. There is no edema. There has been no local or regionary recurrence.

Case VIII. Mrs. L., fifty-six years old, married; five children; about one year ago noticed swelling in right breast. Growth has been rapid, pains considerable, extending out into arm. Noticed retraction of nipple for several months. Tumor about the size of English walnut, adherent to skin, situated in outer and interior quadrant. Axillary glands slightly enlarged. Diagnosis, cancer of right breast. March 26, 1903, operation. Axillary and infra-clavicular glands and sternal portion of pectoralis major removed. It is now two years and two months since the operation; patient is in good health, no local or regionary recurrence.

Case IX. Mrs. S., aged sixty-two years; married, three children. Noticed swelling in right breast over two years ago. Pains were moderate and intermittent,

therefore no attention was considered necessary. Tumor as large as hen's egg, adherent to the skin, occupying center of breast, nipple very much retracted; adherent somewhat to the pectoral fascia, so that it was not freely moveable over it. Axillary glands enlarged and tender. May 21, 1903, complete operation; metastasis in anterior mediastinum seven months later. Last I heard of her about eight months ago, still living.

CASE X. Mrs. A. J. S., forty-one years, married, cancer of left breast, operated upon July 25, 1903, at St. Francis' Hospital, Hartford, for Dr. Boucher. Complete operation performed. Dr. Boucher very kindly gave me the subsequent history. His examination was made May 1, 1905, nearly two months after the operation. He writes as follows: "No indication of any return, no enlargement of glands found or evidence of any recurrence. Patient can use arm very well, cannot get it to top of head, but for ordinary work gets along comfortably. Health excellent, looks and feels very well.

CASE XI. Mrs. K., fifty years old, married, no children. Noticed tumor in left breast over seven months ago. Growth slow. Marked lancinating pains extending out into left arm. Tumor now about size of small egg, freely moveable over the pectoralis but adherent to the skin. Nipple retracted. Axillary glands enlarged and tender. January 21, 1904, radical operation. It is eighteen months now since the operation and patient is in good health. There is no local or regional recurrence, slight edema of arm still present.

DIAGNOSIS IN CARCINOMA OF THE STOMACH.

EDWARD F. McINTOSH, M.D.,

NEW YORK.

Symptoms of cancer of the stomach vary greatly. In some cases no symptoms are produced whatever, save failing health, and only the post-mortem reveals the malignant disease which has so insidiously done its work. In other cases vomiting is an early and constant symptom. Again the patient complains of a persistent indigestion, or heart-burn, or acid eructations. Asthenia, cachexia and loss of weight are usual accompaniments. Pain and discomfort in the epigastrium are usual, and when a tumor can be felt the diagnosis of cancer can generally be made. The condition of the appetite is as varied as the other symptoms; with some there is little interference with the desire for food, while in others the appetite is early lost. I have just stated that when a tumor is associated with some or all of the symptoms enumerated, a diagnosis of cancer can generally be made, but there are none of us, who continually see these cases, whether it be in our own practice or in those of others that do not have it brought home sooner or later, by having some patient on whom we have placed a label of incurability get well, that our conclusions after all were based upon defective observations and reasonings. I learned of such a case recently. There had been in a patient over fifty years of age, just such typical symptoms; a consultation was held, and the consultants concurred in the opinion of the attendant, that the diagnosis was cancer. The unfortunate sufferer, face to face with his doom, determined to do one thing for himself, take a sufficient amount of saleratus to relieve the acidity, which had made life unbearable. Beginning with very large quantities, which he reduced with lessening

acidity he slowly improved till he fully regained his weight and strength.

Nearly two years ago a business man in New Haven, came to my office for examination. Several symptoms, together with a tumor in the region of the stomach, were strongly suggestive of carcinoma and I was not surprised to hear him say that two other physicians had already given him that diagnosis, and one had urged an early operation. When I had completed the chemical, as well as the physical examination, I had no hesitation in assuring him that he did not have a cancer, and have since had the satisfaction of seeing him make a full recovery. These two cases are cited to emphasize the unreliability of symptoms as a basis for diagnosis. I would not disparage their value, however, as corroborative indications.

The correct diagnosing of carcinoma of the stomach has been a problem to which scientific effort of the brightest minds in gastro-enterological work has been directed.

If we compare the knowledge of twenty-five years ago, with that of to-day and realize that the following diagnostic aids were then unknown, we must conclude that real progress in scientific diagnosis is largely confined to this latter period. During this time it has been learned how to inflate the organ, so that not only the size and position of the viscus can be accurately outlined, but it can be clearly shown whether tumors, which seemed to be connected with the stomach, are united or separate from it. A reliable determination of the motor powers of the organ is now possible; and it is almost unnecessary to add that the chemical analysis of the stomach contents is one of these latter-day methods which belongs to this same period.

The life of a gastric carcinoma may be divided into three periods:

First.—From inception to the appearance of an exudate.

Second.—From the beginning of the exudate to the time of breaking down of the neoplasm.

Third.—From the breaking down of the neoplasm to death.

Of the first period we can say but little. The patient has no inconvenience to send him to a physician; hence the doctor has no opportunity of seeking to discover any indications which may exist pointing to a cancer. We have reason to believe that the length of this period differs greatly in different cases, as a cancer of the stomach partakes of the same general characteristics of cancer in any other part of the body, and we know that a slowly developing fatty growth may persist for years; or without any discoverable cause take on a rapid proliferation at any time, which if not interfered with ends soon in death. Our diagnostic investigations are confined to the second period and the sooner the tell-tale exudate is discovered, the more hope there is of saving the life of the patient. If discovered early before surrounding tissues and organs have been invaded, the surgeon has his opportunity; if the discovery is made late there is no hope, whatever theories may be advanced for discovery of cancer prior to the period indicated, which is also the beginning of symptoms, are theories entirely impracticable, and have no place in the present paper.

In a recent issue of "Progressive Medicine," appears a presentation of four tests, all advanced during the last two years, and again in the same publication an article on "The Clinical Significance of Occult Blood in Gastric Disease." By way of explanation this article defines occult blood as "such small quantities of blood in the stool that it cannot be seen macroscopically" and states further that "the physical condition of blood is usually so altered by its passage through the intestine that it is not easily recognized by the microscope, hence the need of a delicate chemical test which Boas has elaborated from that suggested by Weber." Boas, Hartmann, Joachim, Schmüllinsky and Schloss have all contributed

something to the present fund of knowledge which is epitomized as follows:

1. Occult blood in feces or stomach contents is of the same significance as microscopic hemorrhage, and of the same value in diagnosis; the advantage of the test is, that by its use a much smaller quantity of blood can be detected.

2. Occult blood is constantly found in cancer of the gastro-intestinal tract.

3. It is present intermittently in ulcer.

4. It is occasionally present in organic and spastic pyloric stenosis.

5. It is absent in acid, antacid, and subacid gastritis, hyperacidity, hypersecretion, and neurosis.

The technique of the test is as follows: The patient must be kept on a diet free from all sorts of meat, cooked and uncooked, for several days. This includes even fish. The stools must be made soft by some mild laxatives, such as Epsom salts. A small quantity, two or three grams, is thoroughly mixed with 20 c. c. of water. This is first extracted with 20 c. c. of ether to remove the fats, etc., from the stool. This is a very necessary part of the procedure, otherwise the ethereal extract becomes a thick emulsion, with which it is impossible to get accurate results. This mixture is extracted with one third its volume of acetic acid and thoroughly shaken. Ten c. c. of ether is then added and the mixture is again thoroughly shaken. After a short time the ether will rise to the top. If this does not occur quickly a few drops of absolute alcohol will hasten the separation of the ether. To two c. c. of the ethereal extract is then added ten drops of freshly made tincture of guaiac (resin of guaiac 1, absolute alcohol 25), with ten to twenty drops of an old oxidized oil of turpentine. No water must get in the mixture and the oil of turpentine must be added slowly drop by drop. If blood is present, in a few seconds an intense blue color will appear in the mix-

ture, which gradually assumes a reddish-violet tint. A solution of hydrogen peroxide, if used in the same proportion as the oil of turpentine, if free from impurities, will give almost equally prompt results."

I desire to call your attention to the four tests already alluded to. "These tests are: 1. The tryptophan reaction. 2. Salomon's albumin test. 3. Gluzinski's test. 4. The estimation of the fatty acids in the urine. The tryptophan reaction has been found in some cases unreliable. Salomon's test for albumin is of considerable diagnostic value. It is made in the following way: The patient takes only liquid nourishment for twenty-four hours, when at the noon meal he takes his last liquid meal free from any albuminous food. At eight in the evening the stomach is very carefully washed with water. The next morning the stomach is washed with a pint of normal salt solution. The fluid is run in and out several times. This water is then tested for albumin by Esbach's test, and for nitrogen by Kjeldahl's method. It is believed when a distinct reaction is obtained and albumin found to be present, it is always in favor of carcinoma. Gluzinski's test is based on the fact that a chronic mucous gastritis develops on the basis of an acid gastric catarrh, during the transition of an ulcer into a cancer or during the healing of an ulcer. If, then, we can exclude the healing of the ulcer, we have a reliable test for the development of a cancer in an ulcer. The healing of an ulcer never gives rise to a mucous catarrh. The stomach is tested three times the same day—first, rinsing it out, fasting in the early morning; then three-quarters of an hour after a test breakfast; then four hours after a beefsteak test meal, when there is absent or very slight HCl in one of the tests, while after the other meals there is strong HCl reaction, and if at the same time the long bacilli are present, though this is not indispensable, then the indications are strongly that the acid catarrh is beginning to change into a mucous catarrh, and that a cancer has begun to develop

in the floor of an ulcer. The fourth method is based upon the estimation of the volatile fatty acids in the urine in cases of suspected carcinoma."

The discovery of the bacillus known as the Ophers-Bous bacillus was the cause of increased microscopic study of the stomach contents, some few years ago. The investigations of Schlesinger and Kaufmann, settled that these bacilli and lactic acid were present at the same time, and each have about the same diagnostic value. Samberg has recently experimented with these bacilli and has isolated two varieties, the long and the short. The concentration of lactic acid destroys all bacteria save the long variety, hence we readily see why in cancer of the stomach such large quantities of these organisms are present. "Kaufmann and Schlesinger have shown that these long bacilli are completely destroyed by HCl; but others developed and multiplied rapidly in the culture medium made with organic (lactic) acid." It is a well-established fact that no one isolated symptom or condition can be considered pathognomonic of carcinoma of the stomach. Free HCl may be absent or present. No diagnostician to-day would consider that alone of any importance. Lactic acid may be found, but because Uffelmann's test was positive, it is not necessarily cancer. I believe, however, when the two are co-existent in the same stomach, that is diminished free acid and even a trace of lactic acid, we have strong ground to suspect a carcinoma; and if there is inability to digest albuminous food at the same time, we have the three legs to our diagnostic stool, and a diagnosis may be made, whether a tumor be felt or not. If then symptoms point to the same conclusion, we may have the greater assurance. If there are no other symptoms, these will be sufficient to make the diagnosis. It is always better to let a diagnosis be made from several, rather than one examination. This holds good especially in the chemical examination of the stomach contents. To emphasize some of the points which I have already

made, let us suppose some cases. If there be stenosis of the pylorus due to a cicatrix from a former ulcer, we will find probably the following symptoms—cachexia, emaciation, ectasy, a decided tumor, and quite likely hematemesis. These look very much like carcinoma but the examination of the stomach contents reveals a large amount of free hydrochloric acid and no lactic acid. It is right here we need to make an examination every week to ascertain if there is any change in these constituents of the stomach contents; the whole matter will hinge on this very point; if there is no substantial and progressive change the diagnosis is pyloric interference, but of benign nature. If there is progressive decrease in the HCl and development of lactic acid, with lessened albuminous digestion, it is carcinoma. A reliable diagnosis can never be made from one symptom.

It is frequently difficult and sometimes impossible to diagnose between carcinoma and atrophic gastritis, without having the patient under observation a long time. If the patient emaciates rapidly, and other symptoms likewise grow much worse, it is carcinoma. If the conditions show little decided change it is gastritis.

It is always advisable to locate the tumor if possible, as in most cases of cancer the tumor can be palpated. In cases where there is doubt, and there is objection to anesthesia, place the patient in the dorsal position, with head toward a window, where there is good light, draw the shades so that a modified light falls upon the abdomen; watch the peristaltic wave pass over the position, where a possible tumor may be located. If the movement at this point is lessened or lost, it indicates a tumor. Patients may be palpated in a warm bath, when tumors can be more readily felt. The question of age must not be allowed too much weight in our diagnosis for while it is more frequent in old age and middle life, it may occur at any time. The differential diagnosis between cancer and tuberculosis of the peritoneum in young persons can be decided without difficulty by a

chemical examination of the stomach contents. Carcinoma in nearby organs may be difficult to diagnose from that of the stomach—usually we will be helped by inflation of the stomach. The differential diagnosis between carcinoma and ulcer is not difficult, even though some of the symptoms seem conflicting, in any given case. The history of the case, a study of the whole symptom complex of the disease, and a chemical examination of the stomach contents, will make the matter plain.

Finally.—While I have endeavored to present the chief difficulties in diagnosing carcinoma of the stomach, and the approved methods of meeting the same, I am not insensible to the fact that no two cases are exactly alike, and that any one of us may meet in our next case conditions which will try all our knowledge; and give us something new to record concerning carcinoma of the stomach.

SURGICAL ASPECTS OF ULCER OF THE STOMACH.

HENRY M. LEE, M.D.,

NEW LONDON.

The advance of "Stomach Surgery" in the last few years has been perhaps one of the greatest surgical triumphs, and beginning with Gastrostomy, there rapidly succeeds one upon another, new operations upon this organ, till at the present time the stomach is often attacked by the Surgeon, and the outcome of these operations is brilliant not alone as a surgical procedure, but also in results.

The latest disease to be recognized as amenable to surgical interference is Ulcer of the Stomach. It is my purpose to bring before you this subject as it presents itself to the Medical profession to-day, and to deal more particularly with the operation for hemorrhage from gastric ulcer. Unfortunately the experience of any one man is limited, and to-day few operations of this nature are recorded. However, there seem to be enough to allow us at least, to believe that the future will increase the number, and we may safely assume that as time goes on and the technique of operation further develops, the results will be more gratifying. As an example of the rarity of operations for hemorrhage from gastric ulcer, allow me to give you these figures:

Bryant, "Operative Surgery."

Recesses, Johns Hopkin's Hospital 13 Cases	9 deaths
Howard, (Am. Jour., Med. Sci.)	1 " 1 "
Rout, 1897,	2 " No "
Gunnard, 1893,	1 " " "
Kuster, 1894,	2 " " "
Korte, 1897,	1 " 1 "

Mickulicz, 1897,	2 Cases	1 death
Cocin, 1899,	1 "	No "
Andrews & Eisendraft, 1899,	2 "	0 "
Blake,	5 "	2 "

Among these cases various methods were employed to control the hemorrhage; to wit: ligation of the gastric arteries along the lesser curvature; ligation of ulcer en masse; extirpation of ulcer; gastro-enterostomy. I find but one case recorded that gives the number of ulcers found, viz., Cocin's case in which four ulcers existed. To this list I can add one case, in which nine distinct ulcers were found.

Ulcers of the Stomach are divided into two classes, viz:

1. Acute. 2. Chronic.

In regard to the Acute Gastric Ulcer, it will suffice to say that this condition belongs entirely to the department of Medicine, and by medication alone, the ulcer heals quickly and the patient recovers; many completely, some partially. It is probably these cases in which, though the symptoms of Acute ulcer subside, yet functional derangement of the stomach still persists, that finally develop evidence of a Chronic Ulcer.

Hemorrhage from an Acute Ulcer, though brisk at times, does not call for surgical interference, as a rule. The histories of these cases teach that medical care suffices, not only in abatement of hemorrhage but also in complete cure. It is possible to have a hemorrhage perhaps in an Acute Ulcer which would be so severe as to demand surgical interference, but in the light of what we know of Acute Ulcer, I venture the opinion that if hemorrhage occurs either profuse enough on one hand, to place the patient in jeopardy and call for surgical interference, or recurring hemorrhages take place on the other hand to an extent sufficient to demand surgical procedures, that perhaps a mistake has been made in diagnosis, and the patient is really suffering from ulcer

of long standing. Only seeing the ulcer either at operation or autopsy, would clear up this point.

Let us look at Chronic Ulcer: Here we have a very different picture presented. We are dealing with a condition which not only has made the patient more or less an invalid, but which also may, in many ways demand that patient's life. It is the Chronic Ulcer which has rebelled against and persisted in its course, in spite of medication. It is the Chronic Ulcer which has gone on in its ravages and escaped notice. It is the Chronic Ulcer which has caused many vague and distressing symptoms. It is the same Chronic Ulcer that suddenly, without warning,—as in the case I am to report—caused the patient to be placed at death's door, or else caused such pathological conditions in the stomach that the patient, weak, anemic, predisposed, particularly to tuberculosis, comes to us, and in order to be saved must submit to some surgical procedure, changing his life thereby, not alone from effects of operation, but because his physical condition is most unfitted for any surgical procedure.

For a further discussion of this subject, let us tabulate those conditions which arise from Chronic Ulcer, and which in order of frequency bring the patient to the operating table.

Chronic Ulcer.

1. Perforation.
2. Cicatricial contraction (particularly at the pyloric orifice.)
3. Carcinomatous tendencies.
4. Hemorrhage.

and then discuss the various methods of treatment of those different phases of this disease.

1. Perforation:

This accident is rather a common occurrence in the history of Chronic Ulcer of the Stomach,—possibly the

first definite clue to the actual existence of such. To further elucidate this condition, let me give briefly the history of such a case which I am personally acquainted with, though I had nothing to do with the patient.

The case came to our hospital in July, 1903.—Boy, age fourteen; no previous evidence of trouble. Was found unconscious by the roadside, some ten feet below the road. Apparently had met with an accident while riding his bicycle and had been thrown just before he reached the bridge which crossed this water-way. Was admitted to the hospital July 23rd, 1903. No history obtainable at the time. Diagnosis of some injury to viscera was made. Celiostomy performed, but outside of finding considerable serous fluid in peritoneal cavity, nothing was evident as to cause of trouble. Patient died July 24th, 1903. Autopsy revealed the fact that perforation of a Gastric Ulcer had occurred. The ulcer was situated on the posterior surface of the stomach, near the pylorus. The stomach contents were found scattered in the lesser peritoneal cavity. Patient died evidently of a rapidly spreading septic peritonitis.

Most instructive are these figures concerning the mortality of this accident, and showing plainly how great the results of surgery are, if surgery can have the opportunity of asserting itself in time to deal with perforation only, and not with the resulting effects.

Dr. Blake reports these cases—six operations for Perforation:

1	case	operated on	5	days	after	perforation,	died
1	"	"	21	hours	"	"	"
1	"	"	48	"	"	"	"
1	"	"	8	"	"	"	recovered
1	"	"	6	"	"	"	"
1	"	"	48	"	(Duodenal Ulcer)	"	slowly.

In 1896 Weir & Foote collected seventy-eight cases. Mortality in these cases was as follows:

Cases operated on within 12 hours after perforation 39 per cent.

Cases operated on between 12 and 24 hours after perforation 76 per cent.

Cases operated on over 24 hours after perforation 87 per cent.

Statistics tell us that 98 per cent. of cases of perforation of Gastric Ulcer, die unless operated upon. These figures certainly teach us this fact,—that if the case of perforation of Gastric Ulcer comes to the surgeon under 12 hours from time of accident, chances are good for recovery, but after that time the mortality figures run up amazingly fast in proportion to time elapsing. And then this brings out the fact that only by more correct and early diagnosis, are we to increase the percentage of recoveries from this lesion. Briefly, the surgical procedure is this: Close the perforation, which is best done by freshening both or turning in the edges of the lesion; clean the peritoneal cavity of stomach contents and perform a postero-gastro-enterostomy. That the recovery depends much upon the peritoneal toilet and the handling of the peritonitis, goes without saying, and too much care cannot be given to these details. These patients are suffering from Peritonism; they die of peritonitis, consequently all endeavors should be brought to bear upon overcoming such conditions.

Regarding Chronic Perforation, we have a somewhat different condition to meet, for the trauma has caused a local peritonitis with adhesions, practically a walled-off abscess, and the adhesions may securely hold the stomach to adjacent viscera, as the pancreas, naturally not only making the operation difficult but increasing the danger to the patient, because of the necessary trauma to various organs. In dealing with such a condition the same procedure is undertaken as in Acute Perforation with added cleansing and efficient drainage of the contaminated cavity and Peritoneal Surfaces.

Cicatricial Contraction.

Though this occurs in any Chronic Ulcer wherever situated, it is those cases where the ulcer has occupied that portion of the stomach near the pylorus which come to the surgeon for relief. Necessarily contraction of the pyloric orifice must interfere very potently with the function of the stomach.

Pyloric stenosis in any degree, by mechanical effects, causes invalidism and distress. There is but one method of relief and that is operation. The choice of operation, when the statistics of Von Mikulicz, Billroth and Cerny, Mayo Robson, McQuhann, Finney,—all pioneers in this work, and who have collected operations of this sort which reach into several hundreds, rather favors Gastro-jejunostomy.

The operations that deal with a stenosed pyloric orifice are these: Pyloroplasty with or without excision of scar tissue, Gastro-duodenostomy, Gastro-jejunostomy, and if malignant tendencies exist, Pylorectomy.

Though pyloroplasty gives good results yet the anastomosis is simpler and more positive of continued efficient drainage and seems to be the choice operation. Of the anastomotic operations the posterior, Gastro-jejunostomy seems the best to be employed, because of the anatomical relations of the jejunum to the stomach, the jejunum lying naturally directly behind this organ, making the operative procedure simple, giving very efficient drainage and not causing the establishment of the so-called "Vicious Circle" which has occurred when a long loop of gut lies between the pylorus and anastomotic point, as is the case if the Gastro-enterostomy be accomplished too far down the intestinal tract. Finney's Gastro-duodenostomy has been most successful in his hands.

Pylorotomy, when done, and necessitated only by malignant growths, seems best accomplished by direct suture of the divided ends followed by a posterior Gastro-jejunostomy.

Hemorrhage.

It is particularly hemorrhage from gastric ulcer, which I wish to bring before you. I have already stated that hemorrhage from the acute ulcer does not belong to the surgeon as a rule.

As regards the treatment of hemorrhage from gastric ulcer, so few cases have ever been operated upon that there has not been afforded an opportunity to estimate which of many procedures adopted seems best fitted to these cases. These cases are scattered among few men, and no one man has had any number. I have already alluded to the methods employed to control hemorrhage. Because of so few cases being brought to light, a more or less theoretical aspect must be given to our statements in speaking of this phase in the history of gastric ulcer. Let us just consult the mortality rate of hemorrhage from gastric ulcer. Savarian places this at 66 per cent.

If operation is to be undertaken for hemorrhage from gastric ulcer, we must and ought to have certain knowledge in reference to what cases, presenting this complication, should come to the surgeon. Upon the histories of past cases and experiences of men familiar with the subject can we obtain such knowledge. Moynihan has given a very lucid exposition on the subject, based upon these conditions: He first gives us two divisions of cases of hemorrhage from gastric ulcer—

1. From Acute Ulcer.
2. From Chronic Ulcer.

and then goes on to say that the hemorrhage from acute ulcer shows a marked disposition to abate under medical care. On the other hand hemorrhage from chronic ulcer is recurring in character, large or small, at long or short intervals. From this he advances the hypothesis that operation should not be done for one hemorrhage alone; other observers agree with these statements. Personally, though I hesitate to advance personal opinion here because of my little experience in this condition, I be-

lieve, however, that the rule "Not to operate for one hemorrhage alone" should be closely adhered to, and I would add also that "Operation should be undertaken when recurring hemorrhages take place from a chronic gastric ulcer," as soon as the diagnosis has been made in the light of the good results following operation, it seems to me our duty to operate. By so doing, two necessary effects are produced, viz.: cessation of bleeding, and a cure of the condition, thus preventing other serious sequelae so prone to follow a chronic gastric ulcer, and placing the patient if not in perfect health, in at least a position free from immediate danger, and relief from distress.

That hemorrhage may be so severe as to almost produce death is very true. Here we are face to face with an emergency, the one great fact presenting, being "To save life we must operate." Truly our duty is plainly before us and our work stands out boldly.

Should not a hemorrhage from the stomach,—which is sufficient to bring the patient to death's door, and which, repeated times enough will certainly produce death,—be controlled just as much as hemorrhage from other parts? I think only one answer can be given, and no one would doubt the truth of the "Yes."

To produce vividly a picture which the above may have brought to you, allow me to give the history of these cases:

Mrs. O., aged thirty-seven, married, white, housewife by occupation.

Family history—negative.

Personal history:—Up to five years ago (1896) this patient was a strong, well woman; had never suffered from any severe illness and enjoyed unusual health. Was always temperate and exercised reasonable care and judgment as regards her living in respect to her health. She was never pregnant.

In the year 1899 this patient began to have some slight

disturbance with her stomach which she thought to be indigestion, but to which for a time little attention was given. As near as she can remember only once in a while would she have some little discomfort in the way of fullness and uncomfortable feelings over the region of the epigastrium, at first, but after a time, perhaps a few months, she began to have these uncomfortable feelings more frequently, till at last she sought medical advice. Despite medication, however, her trouble increased till the discomfort became an actual pain, and her distress marked. A regulation of diet in conjunction with medication was now commenced, but in spite of this her pain and irregular feelings continued, till at the end of at least three years, she considered herself, and in fact was, a semi-invalid. She had lost considerable flesh and had restricted her diet to such an extent that she was not really getting enough nourishment. No one article of food seemed to cause her trouble, but everything taken into the stomach produced a sense of fullness and pain. At this time she had exhausted the many treatments in the way of drugs and contented herself by using some few simple measures, as drinking of hot water, frequently, and using hot milk. For many days at a time she would subsist almost entirely on a diet of hot milk, toast, and crackers. Yet the pain described as a sharp cutting pain at times, merging into a dull discomfort, persisted, and the feeling of "goneness" as she expressed it, seemed to grow steadily worse, until it was not only ever present, but gave her more actual suffering than did the pain. She never at any time vomited after eating, nor was she annoyed by the eructation of sour fluid, though much distressed by accumulations of gas both in the stomach and colon. Her bowels were not regular and she became anemic and neurasthenic, lost flesh, and was not able to do her work or enjoy herself socially. Such a condition as this obtained up to February, 1904, when her trouble reached a point of culmination.

In speaking to her family physician, Dr. Heyer, who had seen her from time to time during these five years, I am assured, that, though thorough examination had been made by him of the patient's condition, no evidence could be elicited which pointed to any condition other than an obstinate functional derangement of the stomach.

On March first, 1904, Dr. Heyer was summoned to this patient and when he arrived, found her so desperately situated that consultation was at once sought and I was asked to see the patient with him.

She was in bed and suffering from marked evidences of severe hemorrhage. — Pale; was extreme—mucous surfaces exceedingly pale; pulse 120, small and soft; respirations increased, mind clear. She had lost so much blood that it seemed as if her life was fast ebbing away. After efforts to speak she would faint. From one of the members of the family we obtained this statement; corroborated from time to time by the patient herself:

In the evening of February twenty-eighth, two days before, while sitting at the piano and feeling as well as usual, she suddenly vomited blood, and in a large quantity; became faint and went to bed. On arising in the morning she felt in her usual health, only a little weak. That day she reclined and during the night again vomited a large amount of blood, which made her weak and faint. In the morning her family physician was summoned and before his arrival she again vomited blood. Dr. Heyer and I saw the blood this time, which had been vomited in a wash-bowl, and a very conservative estimate would place the amount at very nearly a quart. The condition in which we found the patient was conclusive evidence that she had lost a great quantity of blood, and we both despaired of her life.

Examination of the patient revealed to us nothing. There was no evidence of tumor mass about the abdomen; no pain on palpation; Thoracic contents normal. A diagnosis of hemorrhage from gastric ulcer was made.

and realizing the desperate condition of the patient, and the fact that such a hemorrhage as we saw must be from a large vessel which in all probability would not cease bleeding, we advised operation as the only relief. This was readily consented to by the patient who realized her condition, and by the family. She was at once taken to the hospital and I operated upon her shortly after her arrival there.

All precautions in regard to shock and the previous loss of blood were taken. The patient was surrounded by hot water bottles and given one and one-quarter litres of salt solution intravenously. The good effect of this was at once evidenced by a fuller pulse and increase in color. No stimulation was used, except one pint of salt solution and two ounces of brandy, per rectum. As soon as the pulse began to come up the operation was commenced.

Operation.

The abdomen was opened just left to the middle line beginning at a point just below the ensiform cartilage and carried downward about three inches and then curving sharply to the left. The rectus muscle was not cut but the sheath opened and the fibres drawn to one side. This incision gave ample room for manipulation. On opening the peritoneal cavity the stomach was found to be quite full of fluid. Stomach was withdrawn from the cavity and surfaces inspected. On the posterior surface, numerous petechial spots were observed scattered irregularly over this area. The stomach was large and its serous coat apparently normal. There were no adhesions or any evidence of peritonitis. With the stomach well out of the wound and surrounded by towels, an incision was made into the anterior surface some three and one-quarter inches long, running horizontally. A large amount of blood was washed out and after cleansing the interior of the stomach with salt solution, inspection revealed many distinct bleeding points and multiple ulcers. The ulcers varied in size from that of

the diameter of a goose-quill to the size of a quarter of a dollar. These ulcers occupied the surface nearer the pyloric end than the oesophageal. All of the ulcers extended through the mucous membrane; most of them down to the muscular coat, and three, (the largest) down to the peritoneal covering. It was from these three largest ulcers that the bleeding was taking place. From these ulcers arterial blood was pouring, and very freely. I adopted the following method of dealing with the ulcers: The edges of the mucous membrane were cut clean and dissected up for about one-eighth inch; the ulcerating surfaces were then scraped clean with the knife and a silk suture run around the ulcer at the bottom, passing just into the muscular coat. This suture was drawn tight which brought the raw surfaces fairly closely together.

Another encircling suture was buried just under the submucous and this drew the base of the ulcer together firmly and the mucous membrane was united by a continuous suture of fine silk. The three large ulcers were treated in this manner, and the bleeding from them stopped. The smaller ulcers required but one encircling suture; these being only into, not through the muscular coat. Nine ulcers in all were thus treated.

Fearing, however, that the three ulcers from which the bleeding had taken place and which were down to the serous covering might continue on and cause perforation, I found the points corresponding to these ulcers on the peritoneal surface of the stomach and reinforced the weakened wall by folding in the stomach surface and uniting the serous surfaces by Halstead's method of suture. This way firmly strengthened the weak spots and after completion looked like a gastro-plication on a small scale. The stomach was washed out with a weak solution of silver solution, the incision in the anterior surface closed by a continuous suture uniting the mucous membrane and Halstead suture, and the abdominal wound sutured.

The patient bore up fairly well under the operation, which lasted about an hour. We had no hopes of this patient's recovering, in fact could hardly believe our procedure was wise after all. Yet the patient seemed to rally from hour to hour, and the fact that she made an uneventful recovery, makes the after treatment a matter of interest.

For the first twenty-four hours the patient was kept under the influence of morphia, and every six hours one quart of normal salt solution was given per rectum. At the end of the first day—pulse 120; temperature 101°. During the second day the same treatment was continued. At the end of the second day—pulse 100; temperature 100°. The morphia on the third day was not used freely, and one ounce of brandy added to the saline per rectum. This was kept up through the fourth and fifth days. At the end of the fifth day the temperature was normal and pulse 80. Beginning on the fifth day, cocca butter in emulsion and rectal nutrient enemata were given, and sulphate of strychnine gr. 1.60 hypodermically every four hours. The patient was also given dram doses of hot salt solution by mouth which was retained and caused no distress.

Up to this time the patient had done remarkably well and had been comfortable when awake only complaining of intense thirst and some little flatulence. One hour after operation she vomited a small amount of blood, dark in color, and that was the last vomiting she had. Enema for cleansing purposes was given at this time (fifth day) and a large amount of dark material, evidently mostly blood, was expelled. The next five days consisted in the same line of treatment with one cleansing enema once in twenty-four hours. On the tenth day, the sutures were removed from the abdominal incision which had healed by first intention and I began to feed the patient by mouth, commencing with drop doses of pure beef juice and running it up every half hour until half a dram was taken. This was given in hot salt

solution and caused no trouble. On the eleventh day she was getting dram doses of beef juice every hour, with a liberal amount of hot saline solution.

On the twelfth day her diet was as follows: (copied from bedside notes): Mutton broth, 1 oz. q. 3h.; small portion of baked apple twice during the day.

Thirteenth day.—Oat meal gruel, mutton broth, wine whey, malted milk, egg albumen, koumiss, alternating 1 oz. q. 3 h.

Fourteenth day.—Any of the food she had on the thirteenth day, as she chose, with—tea, custard, swietach, scraped beef sandwich.

Fifteenth day.—In addition to any of the above, gelatine and shredded wheat biscuit were added.

On sixteenth day, patient was allowed out of bed, and a diet of solid food, consisting of rare beef or chop, baked potato; toast, with plenty of broths as she desired, was given once daily; the rest of the time fluids once in two hours.

From here on, the patient was practically well and in twenty-one days was eating three meals of solid but restricted food. Medication for the profound anemia had been kept up from the tenth day. At no time did the patient suffer from her diet and for the first time in nearly five years ate without suffering for it. Her condition at the end of four weeks, was, except for the anemia, normal. She was taking on flesh, went to her home and was placed under the care of Dr. Hoyer, her family physician. Dr. Hoyer gave her hematinics and tonics, and in three months left her in perfect health, and eating without distress, anything and as much as she chose.

I saw the patient once in a while about town and at the end of a year, visited her that I might see her condition and also complete this report, for I believe that after the lapse of one year, I can say with positiveness that her stomach is normal. The patient has gained

some thirty pounds in flesh, and not only looks perfectly well, but assures me that all the old feelings are gone and that she had not been so well for years.

In closing I wish to say that the procedure I adopted in dealing with this stomach seemed the only one that would have answered the purpose. I fully realize that my operation from our standpoint, was not complete, inasmuch as a posterior gastro-jejunostomy ought to have been done, but it must be remembered that I was operating upon a woman who was in fearful straits; whose life was fast ebbing away, and having secured the object that was to stop this hemorrhage, which I did most effectually, the operation too being one accompanied by shock and a long procedure, I felt that any lengthening of operation, beyond that of effectually stopping the bleeding, was not justifiable. In fact, I believe the patient would have survived but little longer had she been exposed to farther manipulation and anesthesia.

My only other experience with a case of chronic ulcer of the stomach causing severe hemorrhage is briefly as follows:

Mrs. W., age forty-seven, married, never pregnant. Addicted for two years to the use of cocaine, anemic and in poor physical condition, was seen by me in May, 1904. She had had several attacks of vomiting of blood during the day and gave a straight history of gastric ulcer, extending over a period of one year. While I was present she vomited about a pint of blood and was sent at once into the general ward at the hospital, where she was placed under the medical service. The vomiting of blood kept up and patient died two days after being admitted.

It is now pertinent to ask, by what method shall the hemorrhage be controlled?

To-day, because of the results obtained, and also because of advantages "per se" of one method over another, it seems to be a fact that the operation of posterior

gastro-jejunostomy is the operation of choice. Yet much depends upon not only the location of the ulcer, but also upon the condition of the patient, and finally, the condition as regards size, kind and number of ulcers to be dealt with.

In acute ulcer, of moderate size, located on the anterior surface of the stomach, simple excision and closure of the wound should suffice. A gastro-jejunostomy could be combined and very logically; for by so doing the stomach would be placed at rest and healing be possibly facilitated. Yet, rest to ulcers like this on the anterior wall is not a necessity to be accomplished by anastomosis.

If the ulcer cannot be excised, the bleeding should be stopped by encircling sutures and the ulcerating surfaces approximated. Here certainly gastro-jejunostomy will be of great aid.

In dealing with chronic ulcers, the salient feature is to stop the bleeding by ligating the bleeding points if found, by the encircling sutures, as I did in the case reported, and supplemented always by a posterior gastro-jejunostomy. If the ulcer cannot be located, this makes the performance of a posterior gastro-jejunostomy an absolute necessity; because, by such an operation alone, hemorrhage will be controlled, for the necessary rest has been established, the stomach remains quiet, and the ulcer tends to heal as soon as drainage and rest occurs.

In summing up we advance these few facts:

1. Single acute ulcer may be excised:—or
2. Single acute ulcer may be brought together by suture. Both procedures are efficient in stopping hemorrhage.
3. Supplementing either, with a gastro-jejunostomy if conditions seem to demand it.
4. Single chronic ulcer might be excised:—or
5. Chronic ulcers may be treated in various ways as the condition presents and resources of surgeon bring

to light, but a posterior gastro-jejunostomy is here demanded.

6. By gastro-jejunostomy alone, without interfering with the ulcer.

7. Posterior gastro-jejunostomy must be done when the ulcer cannot be located.

Exception to procedures other than treatment of these ulcers direct would be in such a case as mine, where the bleeding, being positively controlled, and the patient in no condition to withstand further manipulation.

I feel, however, that though my case recovered, yet I but half did the operation, and should have performed a posterior gastro-jejunostomy. In spite of the fact that the bleeding was stopped at the time, it very well might be that those sutures would give way, and all the work been for naught. But if one has fortified whatever method of dealing directly with the ulcer he choose, by a posterior gastro-jejunostomy, he certainly has done all that can be done; has given greatest chance for recovery to his patient and would never feel culpable in case the patient is lost.

Gentlemen, I have tried to put before you this question as it is presented to us to-day. I have given what little personal experience has been mine; I have given the experience and ideas of those whom we respect; of those, to whom, because of their great clinical facilities, we must look for further advancement along this line. We all regret our limited experiences, yet by meeting as we have, each one adding his little, we may in time, by joining hands and heads, have much.

I predict gentlemen, that the future will show us another brilliant achievement of surgery, viz.—“Operation for Hemorrhage from Gastric Ulcer.”

The above case is reported in the *American Journal of the Medical Sciences*, Aug., 1902.

DISCUSSION.

Dr. Howe: Mr. President, I am very much interested in both of the papers, especially in that of the first gen-

Heman. No doubt his conclusion is correct, that a posterior operation of the stomach would have been advisable, and just the right thing to do. Carcinoma of the stomach is such a broad and interesting subject to me that I am unable to discuss it impromptu. You must remember that we may have carcinoma of the stomach without any of the tests being able to show it, and the real and final and only test is an exploration. If you have serious trouble with the stomach and suspect carcinoma, even though all the symptoms fail, all the tests fail of illustrating or proving the fact to you, the only thing for you to do is laparotomy. That is now simple and not a dangerous proceeding, but it is dangerous to wait for proof by any or all of the tests which are brought before the public to-day, as all of them are liable to fail.

Dr. Gompertz: I was unable to hear Dr. Lee's paper on gastric ulcer, but I have listened with pleasure to Dr. McIntosh's paper on the diagnosis of carcinoma of the stomach. While I agree with Dr. McIntosh that the chemical tests in the early diagnosis of carcinoma of the stomach are very valuable, still, the chemical tests alone, as well as the physical symptoms, are absolutely of no value in certain cases in the early diagnosis of carcinoma of the stomach. Dr. McIntosh failed to mention what seems to me of great importance (and I simply go by the teachings of the well-recognized authorities) that the early diagnosis of carcinoma of the stomach can be made many times by a microscopical examination of the empty stomach contents. If we wait for the appearance of a tumor, or for the breaking down of the neoplasm, the case is hopelessly lost as far as an operation is concerned. Not only does the microscopical examination aid us in making an early diagnosis of carcinoma of the stomach, but it tells us the exact, or almost the exact, position of the carcinoma. If we examine the empty stomach contents, and by this I mean no food or drink having been taken since the night before, and in

the morning the patient comes to us and the stomach tube is passed, and we get the fasting stomach contents for a microscopical examination and under these conditions the microscope shows the constant presence of pus and blood, then we know that we have a carcinoma of the lesser curvature. If there is stagnation and we find by a microscopical examination of the fasting stomach contents, food remnants and lactic acid bacilli, in 99 per cent. of the cases where these are present we are able to diagnose carcinoma of the pylorus long before a tumor is felt. I have seen this diagnosis made repeatedly, and the subsequent operation proved that it was a carcinoma and patients made recoveries. To my mind the microscope reveals more than all the chemical tests. Dr. McIntosh spoke of the chemical tests in ulcer of the stomach. Now in ulcer of the stomach it has been known for very many years that we get hyperacidity. We know that in carcinoma of the stomach free hydrochloric acid and perhaps combined hydrochloric acid are absent. So if we make a chemical test and find free hydrochloric acid and combined hydrochloric acid, it is the same as if we had made no test, but if we make a microscopical examination of the stomach we find microscopically sarcinae where we have a benign growth. If the ulcer is taking on a carcinomatous form the sarcinae become fragmented and soon disappear entirely, and in their place we find the Oppen-Baas bacilli. I believe the microscope reveals more than all the chemical tests. I firmly believe that the physical examination, chemical tests and the microscope should be used before we can arrive at a diagnosis of carcinoma of the stomach, but I do not believe it is right to totally ignore the microscope in this important diagnosis, because by its aid we are able to make a diagnosis earlier and do more good in the way of operation than with the chemical tests.

Dr. Boucher: Mr. President, I was very much interested in the very excellent paper which the doctor read.

I was not present when the paper on gastric ulcer was read. The tests which the doctor has referred to are certainly very valuable in making a diagnosis of cancer of the stomach. They are all valuable as far as they go. I was very much interested to hear one of our leading surgeons say the other night that an eminent Minnesota surgeon was to disprove the possibility of microscopical or chemical diagnosis of cancer of the stomach, as the result of the examination of a series of five or six hundred cases. He is going to disprove that it is absolutely impossible to make the diagnosis without an exploratory incision.

There was one point the doctor made in the paper, that when the tumor was felt the cases were hopeless. I presume he meant by that that the cases were hopeless as far as life was concerned. They are certainly not hopeless as far as relief is concerned. I don't know of any other condition where we get more benefit at the present time than by anastomosis in cases of carcinoma of the stomach. We get more relief and oftentimes gain prolonged life, from six months to two years, with little or no risk.

The lactic acid test is not always reliable. I have recently in my experience had a case where the lactic acid test was not reliable. Some five or six years ago one of the leading young surgeons of this country made this statement: He said that if a case of stomach trouble were treated intelligently for six or eight weeks without a diagnosis, it was time for an exploratory incision. I think we will all feel that way after a very short time. It seems to me that the surgery of the stomach is taking the front rank in the surgical field at the present time.

Dr. Lee: Mr. President, I have little more to say, except I feel that we are in a field that is just opening. I think the various measures that have been adopted in operating, particularly for hemorrhage from gastric ulcer,

are still in question. Because probably of the easy method of anastomosis that has been a favorite operation. More operations have been done that way at the cessation of any irritations, which is only accomplished results. It seems only reasonable to believe that for the cure of gastric ulcer we must have both rest and cessation of any irritations, which is only accomplished by an anastomotic operation, and that I think should supplement all operations upon the stomach, for hemorrhage particularly, unless a man is so placed that we must do something else on account of his condition. In my case the patient would not have stood any more manipulation. The operation occupied almost an hour, and I was operating upon practically a dead woman. The Gastro-enterostomy should have been done. I consider the operation from our standpoint absolutely incomplete. I do not feel satisfied with the work. However, before the anastomotic operation was done, about as many cases recovered by the various measures adopted. I think to-day we are only in the beginning of this field, and that the future alone can tell us which is the better one of the many procedures already adopted.

Dr. McIntosh: Mr. President, I wish to allude to two or three things that have been spoken of, and one is in regard to the appearance of the exudate, which is really as I stated in the paper, the beginning of the symptoms. It would be difficult to subject the patients to any kind of examination until they first come to the doctor, and generally the exudate is already there, and the tests by most gastro-enterologists are made through the chemical tests,—they are the ones that are depended upon. The question of the tumor being felt, and its being hopeless after we get a tumor,—I did not mean to imply that in the paper. I stated that sometimes a tumor could be palpated, and sometimes it could not, but I wouldn't say that it was hopeless because we have a tumor there, but it would strengthen our diagnosis, or our own assurance of it if we did find out. I should still think that the sur-

geon might have a chance even though we have a tumor. Sometimes the tumor is less easily palpated after the neoplasm is broken down, and surely we all agree that there is little hope for the patient then. And on the question of the impossibility of making any diagnosis, I want to emphasize once more the necessity of making a number of examinations, and if you do not find the lactic acid in the first three or four examinations, you may find it in a later examination. Make a good many, even before we have that exploratory incision which has been spoken of, and with which I most heartily agree. If we cannot make a diagnosis that is the proper thing to do. However, there is a latent objection in the minds of most all patients, and physicians themselves if they are the patient oftentimes to having even an exploratory operation done. If we can find out definitely it is a great deal better on both sides.

NOTES ON SURGERY OF THE BRAIN.

HARMAN G. HOWE, M.D.,

HARTFORD.

A few cases of surgery of the brain under my professional observation possessing interesting characteristics to me may interest you.

Operations upon the brain may be classed as traumatic and non-traumatic, or operations for traumatic causes, or non-traumatic causes. In traumatism the main point is to reach the injured part and that as quickly as possible. In non-traumatic cases we usually have plenty of time to study the symptoms and often to accurately locate the disease and decide upon the necessity of the operation. In traumatic injuries of the brain, a few minutes, or a few hours, may decide the question of life or death.

As an illustration of this fact, Case No. 1, male, age forty, occupation, laborer; nationality, Anglo-Saxon; family history, negative, but uses alcohol and tobacco to excess. The injury was received at 8 o'clock a. m., March 13th, when he fell from a wagon, striking the iron handle of a freight-car door. He was carried home, but walked into the house and was laid down. A few minutes after he was found unconscious and cyanosed and in a state of convulsions. He had fifteen convulsions before two o'clock in the afternoon when I first saw him. On examination, he was found semi-conscious, can be roused to expectorate, wants to be left alone; shortly after seeing him, the eyes suddenly converged to the right and became fixed, the pupils which had been contracted suddenly dilated, the face twitched and the mouth was drawn to the right, slight clonic convulsion of both arms and legs. Cyanosis was very marked, breathing slow, stertorous and regular. Pulse much

slowed down during convulsions. After the convulsion the semi-conscious condition returned. The man has a well-developed, powerful physique. There is a slight abrasion of the scalp over the parieto-occipital suture. No breach of continuity of skin, no contusion, no depression, no hemorrhage from the ears or nose, heart regular and normal, lungs and abdomen normal. The man was placed upon the operating table after consultation with Dr. Simpson and it was decided to open the skull. An angle incision was made across the scalp just behind the fronto-parietal suture, joining one at right angles just to the left of and parallel to the sagittal suture. Upon elevating the scalp no fracture of the skull was found anywhere in this region. Trephining was done and a button was raised one and one-quarter inches to the left of the sagittal suture and one-half an inch behind. Upon raising the button quite a quantity of dark blood oozed out, upon the surface of which a small stream of arterial blood appeared in contrast. Hemorrhage seemed to come from the direction of the sagittal suture.

Upon enlarging the opening with rongeur forceps in this direction, a rent in the longitudinal sinus was exposed, packed with gauze and dressed as usual.

The patient, with the exception of a severe attack of delirium tremens on the fifth day, made an uneventful recovery and was discharged cured April 5th.

This case illustrates the necessity of immediate operation in traumatic injuries to the brain as well as any I have ever met. A few hours of the same character of convulsions would have, of necessity, been fatal. All indications of pressure subsided after exposing and packing the tear in the longitudinal sinus.

The lessons to be drawn from this case are:

First:—Severe injury to the brain or its membranes may occur without any fracture of the skull.

Second:—Operations upon injuries of this character are indicated by symptoms present, not by the presence or absence of fracture.

Third:—If symptoms present point to the necessity of the operation, it should be performed as soon as convenient, owing to the friability of the brain tissue.

Case No. 2. Mr. J., Anglo-Saxon, age forty-two, manufacturer, stocky, well-developed, five feet six inches in height, weighed about two hundred, was thrown by an automobile accident with great force, head on, against a tree. When examined one hour afterwards, he was found partly unconscious, bleeding at both ears and nose, slightly paralyzed on the left side, tongue deviating slightly, pupils uneven, no fracture of the cranium to be found, contusion of the scalp on the patient's right side over the ear was the only visible sign of injury. He was watched through the afternoon and early evening, when unmistakable signs of increasing cerebral pressure presenting themselves, in consultation, it was decided to make an effort to relieve this pressure.

He was trephined over the seat of the contusion down near the lateral sinus, the dura mater was found bulging, a probe was passed down toward the base and quite a quantity of blood of a dark character was discharged. A drain was introduced and the wound dressed as usual. Although the wound continued to drain to some extent, no lightening of the symptoms occurred. Coma and death occurred within sixteen hours after the operation.

From this case we deduct that we cannot always determine from the amount of paralysis, or other subjective symptoms exactly how large a portion of the brain is involved in an injury. In this case there were extensive lacerations at the base which no amount of draining could possibly reach. As a means of satisfying the friends of the absolute futility of any remedial agents, the operation was gratifying and, in my judgment, fractures at the base should be operated upon more generally with the hope that drainage in many cases of moderately slight injury may be the means of saving life.

Case No. 3. Miss J., age twenty-two, American, unmarried, was hit by a golf club on the lower portion of

the frontal bone, one inch from the median line, crushing in the bone, but giving rise to no symptoms. Here it was thought wise to operate on the following grounds. The injury to the frontal sinus and the ethmoid cells making good drainage a necessity, and injury to the inner table being probable in this location, might be giving quite a good deal of pressure, without creating any symptoms. A piece of the internal plate was pressing upon the brain and it was found necessary to remove the same entirely.

The young woman made a speedy and perfect recovery. This case, although not strictly speaking an operation upon the brain, yet in its results, were it left to itself, would mean a septic wound penetrating the antecerebral fossa, pressure upon the cerebrum and in all probability causing localized meningitis. I am led to relate this case as illustrating one where an operation was called for without any symptoms being present.

In operations for non-traumatic causes, time is usually had for careful investigation of the history of the patient and analysis of the present symptoms, as illustrated by the following case.

Case No. 4. Mr. N., age forty, American, married, was first seen on March 16th, by another surgeon, suffering from a fracture of the left side of the cranium. Some pieces of bone were removed, others elevated and the man made an uneventful recovery. On May 1st he was seen by me, suffering from paralysis and other indications of pressure near the seat of injury. The pericranium was elevated and the surface of the cranium examined, one piece of bone was elevated and one small piece removed, exposing the dura. The brain was found bulging and not pulsating freely. A diagnosis of abscess was made and an attempt at its discharge was decided upon. A small sized blunt dissector was introduced at various angles in five different directions before the abscess was reached. The abscess discharged quite a quantity of sero-purulent liquid. A cigarette drain

was used. The paralysis was immediately relieved and the man made an uneventful recovery, being declared recovered at the end of four weeks.

In this case the former injury to the skull gave us absolute localization of the abscess, without the symptoms, but the symptoms would alone have warranted the operation.

All cases of this character are, as a matter of course, absolutely fatal if not operated upon. If by exploration you succeed in saving an occasional life, you have accomplished a deed worthy of modern surgery and many failures, with an occasional success, is more to your credit than no failures and no attempts at successful operation.

CASE No. 5. Age twenty three, machinist, Irish American, when seen complained of pain over the squamous portion of the temporal bone on the left side and also the base of the skull at times. Nothing particularly interesting in the family history or in the patient's history except that he had scarlet fever during childhood. In the previous May, he had pain over the left ear and a purulent discharge from the ear lasting a few days, ceased about June 8th. During this time he had been under the care of Dr. E. Terry Smith. Although the discharge ceased, the pain continued, patient became dull, appetite poor, vomited at intervals of three or four days. On June 12th on admission to the hospital the patient presents the following conditions: rather thin, dull, slow mental recollection, optical aphasia, localizes pain just above the left zygoma, slight ptosis of the left eye, pupils moderately contracted, but react to light, tongue deviating slightly to the right, dry and brown in the center, no enlarged glands, left membrana tympani has small perforation, systolic murmur of the heart, slightly exaggerated reflexes, no paralysis of the facial muscles, tactile sense in thighs and legs negative, though pain sense is present, tactile sensation present in the soles of the feet, Babinski's reflex present on the left

side, no response of the right foot to irritation. On June 16th leucocyte count was 16,000, lumbar puncture shows no growth of organism, the diagnosis of cerebral abscess was made, skull was trephined just above and a little posterior to the external auditory meatus. The dura was tense, red and bulging and no pulsation of the brain. A small director was inserted downward and forward and a large abscess was evacuated. A tube drain was inserted and the wound dressed as usual. On June 23rd he began to improve mentally. On June 26th a steady improvement, patient seems brighter and talks more every day, now knows the use of a few things and can name a few held up to him, constructs short sentences, recognized relatives, eats quite heartily. From the first this man was fed well. A tent drain was introduced in place of the tube. On the 27th, however, he seemed to grow dull and didn't seem as well. When the dressing was made more discharge was found. The tent was removed and an ordinary cigarette drain was used. June 28th seemed brighter and from this day on he had less pus and natural sleep and improvement mentally and physically was constant. He was discharged entirely well.

A lesson can be drawn from this case of the desirability of studying minutely all acute or sub-acute brain conditions, presenting symptoms in any way localizing the disease and after localization of the supposed mal-condition to fearlessly enter the skull and explore for your supposed disease.

Case No. 6. Operation for epilepsy. William B., age eight, American, admitted to the hospital January 31st for operation, recommended by Dr. Simpson, under whose care the child had been for some time. The present history is that of having two or three attacks of epilepsy in the daytime and seven or eight at night. Physical examination, patient narrow across the forehead, eyes near together, palate highly arched, otherwise normal physical examination.

Operated on February 3rd. After freely exposing the longitudinal sinus, it was ligated with chromicized catgut. The wound was dressed, small drain left in place. Recovered from the anesthesia well. February 4th had two light attacks during the day, wound doing well. February 17 wound healed completely. His epileptic seizures were diminished in frequency and number. Child was removed from the hospital against our wishes. He had less attacks than before and the character of them was very much lighter. On March 21st he was readmitted, suffering from paralysis and general dullness of the intellect. Upon examination a bulging of the periosteum was observed and a diagnosis of abscess was made. A small incision over the prominence of the tumor through the dura evacuated half an ounce of pus, giving no relief to the boy, however, paralysis of the right side continuing and on March 29th he died. Autopsy showed area of broken-down cerebral tissue but no pus. A meningitis localized about the field of operation was present. There was a congenital lack of development in the left cerebrum. As his home was decidedly unhygienic and his parents not able to give him the care he required, it was thought that the wound became infected after he left the hospital. The effect of tying the sinus upon the epileptic seizures was well marked and we had hopes that we would be successful in modifying the attacks. The result was a great disappointment to us, but, like so many other hospital cases, we found it impossible to control the family and retain the case in the hospital until perfect recovery.

Case No. 7. Helen L., age eighteen, American, admitted to the hospital February 14th. Father had been insane and had one child by his first wife who died of hydrocephalus. Patient had measles about nine years old, rheumatic fever about ten. The onset of this attack began about ten weeks ago, severe frontal and occipital headache, sharp and throbbing in character, accompanied by nausea and vomiting, irregularity of the

bowels, rash over the body like measles, appearing and disappearing. About six weeks ago the physician noticed the patient could not protrude the tongue in the median line, was drowsy, lost in weight and strength. Three days ago the patient was unable to speak, breathing became labored and slightly cyanosed. Physical examination shows right pupil dilated and irregular, reacts to light, left pupil dilated, conjunctiva congested, eyelids do not close completely, eye-ground not clearly visible for this reason. No pulsation of the brain, slightly choked disk, tongue not deflected, speech co-ordination poor, left side of face paralyzed, no cervical retraction, but some stiffness and objects strenuously to having the neck bent forward, able to answer questions and intelligence is normal. Rash is present over the arms, neck and abdomen resembling acne. Drools from the mouth continually, considerable trouble in deglutition. After consultation with Dr. Simpson, who had had charge of the case previously, it was concluded that the disease was in the cerebellum and an operation decided upon. After the button had been removed and the opening enlarged, which was made just below the occipital protuberance and to the left, the dura was incised and the cerebellum bulged considerably into the field of operation, exploration over the dura, under the dura and into the cerebellum gave negative results. Veins in this section were enlarged, dark and tortuous. No change in the patient's condition occurred and she became more and more feeble, the cerebellum began to slough, she died February 14th.

I relate this case simply to illustrate that, however carefully the symptoms may be taken and the localization of the disease made, your operation made under strong probabilities of success, the abscess or tumor sometimes lies too deep to be reached by any measures.

In an article on Indications for Operations on Head Injuries, Dr. Ballard of Boston, says he "operates on all cases of compound depression and compound comminut-

ed fractures of the skull. Simple fractures of the cranium without symptoms do not, as a rule, demand operation. Absence of unconsciousness does not contraindicate operation. The degree of unconsciousness is not in all cases proportionate to the severity of the injury. The duration of unconsciousness is important and when it lasts more than twenty-four hours no other cause of the injury being present, operation should be considered. A marked rise of temperature after uncomplicated head injury suggests serious injury to the brain, although it is not necessarily an indication for an operation. A subnormal temperature, without other symptoms, has no special significance. When accompanied by unconsciousness, lasting twenty-four hours or more, it suggests edema of the brain, or intracranial hemorrhage. Severe pain in the head continued for some time after a head injury indicates operation, if organic. Pain in the head following injury may, however, be functional and due to nervous conditions. Convulsions, when chronic and diffuse, suggest epilepsy or other complications. When localized they are of value as indicating the side of the brain on which the lesion producing them is situated. Taken in connection with other symptoms, their presence usually favors operation. Partial hemiplegia and paralysis of the limbs may occur in edema of the brain following injuries."

The above statements refer to adults only. In children paralyzes are more apt to pass away and the indication for operation is not as decided.

Dr. Edwin Dwight, of Boston, in his study of six hundred and fifty cases in which fracture of the skull was demonstrated, either by operation or autopsy, found that 40 per cent. of these were depressed, while only 3 1-2 per cent. of the whole number were localized depressed fractures. In all the other cases the fissures extended into the base. Localized fissures of the skull numbered only 1 1-2 per cent. of the number. The base was involved in 95 per cent. of the fractures. In 55 per cent.

of the fissures, only one fossa was affected; in 36 per cent. two, and in 6 per cent. all three. In 67 per cent. of all hemorrhages of the ear a fracture on that side of the head was found. In 33 per cent. of bleeding from the nose, fracture was found. In 39 per cent. of all fractures, there was no external hemorrhage. Dr. Dwight says: "The diagnosis of fracture of the skull depends upon its discovery by touch, or the presence of one or more of the forms of external hemorrhage. And when so large a number is found in which a fracture exists without either of these manifestations, it must frequently be impossible to be sure of their presence if they do exist."

"The diagnosis of injury to the brain usually depends upon the condition of consciousness, of the pupils and the pulse, the presence or absence of some form of paralysis. In those cases in which there is a decided variation from the normal, it is usually safe to say that there is some form of interference of the functions of the brain. In a large proportion of cases, however, there is no change from the normal and when such change does exist, while it may show the presence of some intra-cranial disturbance, it does not help us materially in deciding just what is going on in the skull."

In non-traumatic surgery of the brain Dr. Coleman reports from the Massachusetts General Hospital a group of twenty-eight cases of operation to remove tumors or to relieve pressure symptoms, with seven improved; eight cases of operations to relieve pressure alone, with two improved; twenty-one cases of operations for relief of epilepsy, with nine improved; six cases of cerebral abscess, with one improved.

From the Boston City Hospital there were reported thirty-nine cases, eighteen of which were epileptic, twelve being traumatic cases, three of which were relieved by the operation, two of the non-traumatic cases being relieved.

From the Carney Hospital, ten patients were operated upon, three being relieved of pressure symptoms; ten

operations for epilepsy, with no deaths, two patients much relieved.

Dr. Lund reported ten operations, six for the removal of tumors of the cerebrum, and four for tumors of the cerebellum. Of the former, three died, one was improved; of the latter, all died.

Dr. Walton in studying three hundred and seventy-four cases of autopsy, containing tumors of the brain, found only twenty-five of them were operable and forty-nine doubtful. He found gummata rare. It had not been met in autopsy in the Massachusetts General Hospital since 1896.

Dr. Dennis, in a recent paper, *The History of the Development of Surgery*, speaks of intra-cranial tension as being relieved by operative interference and places this operation as another mile-stone which marks the progress of the science of surgery. He says, "Cases of coma with no external injury to the skull have been hitherto treated by the expectant plan, with almost uniformly fatal results."

Now an effort is being made to relieve some of these cases by the aid of a careful study of the symptoms, and localization of the disease, followed by exposure of the brain at the point indicated.

DIAGNOSIS OF SURGICAL DISEASES OF THE KIDNEY AND URETER.

OLIVER C. SMITH, M.D.,

EASTON.

Diseases of the kidney and ureter which are not susceptible to medical treatment have gradually come to be regarded as surgical. In a broad way it may be said that the acute and chronic forms of nephritis due to constitutional or general infection are considered to be medical, while the ascending infections, the obstructive lesions, certain degenerative processes and new growths are regarded as belonging to the surgical field. Of late, even the former types of nephritis are regarded by some, for instance, Edebohl, as being not infrequently proper cases for surgical interference. Rigid lines, however, between the medical and surgical field cannot always be drawn, and the correct painstaking and scientific diagnosis of diseases of the urinary organs and passages are as important to the physician as to the surgeon, for in renal as in other diseases an intimate knowledge of the pathology of the various lesions and a scientifically correct diagnosis is the keynote to successful treatment, whether that treatment is to be medical or surgical. The diseases or conditions of the kidney and ureter which may require surgical treatment may be enumerated as follows:

(1) Floating and movable kidney; (2) Calculus in kidney or ureter; (3) Acute and subacute pyelonephritis without suppuration; (4) Pyelitis and pyonephrosis; (5) Hydronephrosis; (6) Tuberculosis of the kidney; (7) Perinephritic extravasations which may be traumatic or non-traumatic; (8) Peri-nephritis which may be suppurative or non-suppurative; (9) Hemorrhagic infarctions; (10) Septic thrombosis; (11) New growths which include in order

of frequency according to statistics compiled by Henry Morris; sarcomata, carcinomata, cystic degeneration, hydatid cysts, adenomata, papillomata, myxomata, lipomata, dermoid cyst. Hypernephromata are not given a place by Morris in this category, but in a recent article by Walter L. Biering and Henry Albert, it is claimed that the supposed rarity of these cases is a mistake, and that the pathologist who carefully examines all those specimens brought to him finds them of rather frequent occurrence. These tumors are of adrenal structure, and originate from the suprarenal gland, or from particles of this gland which have become displaced on to the kidney or under its capsule.

In addition to these there are tumors of the pelvis of the kidney.

The surgical diseases of the ureter are stricture, atonix, calculus, foreign bodies, fistula, tuberculosis, ureteritis and peri-ureteritis and tumors of the ureter.

The diagnostician of renal diseases has an added responsibility, for it is not enough to determine the nature of the disease and its location, but in many instances, especially if an operation upon an effected kidney is contemplated, these further facts must be determined. First:—Does a second kidney exist? for there are many instances on record of the absence of one kidney. Second:—Is the disease confined to one kidney or are both effected? Third:—If but one, which one? and fourth if both are effected the extent of disease in each, and lastly if one is less effected than the other, is the better of the two capable of sufficient functioning power to enable the individual to live if the more diseased kidney is removed? As in the diagnosis of other diseases, obtaining complete histories is very important.

The personal history is so important that it is well to review it before the patient after it is obtained, for it is surprising how many important facts may be omitted, how different a second history will read obtained by another physician at another time.

Having obtained a careful history, a thorough inquiry into the subjective symptoms existing at the present time are in order, and these symptoms are highly important in renal diseases. They include pain and discomfort which may be direct or reflex, the character and frequency of micturition, whether these symptoms are constant or intermittent the condition of the eyes and other special senses, whether there is headache, dullness, drowsiness, chilliness, etc.

Next, a careful physical examination should be made. The abdominal and renal regions should be divested of clothing when inspection, percussion and bi-manual palpation should be carefully practiced.

Inspection should be made of abdomen and loin, and may reveal an enlarged or floating kidney, or a tumor of the organ. Inspection of the loin should be made with the patient leaning over a table, the physician looking from the patient's head toward the sacrum.

Percussion over the renal region posteriorly is not usually of value. Anteriorly the colon covers the lower third of the right kidney, and the upper third of the left. This fact aids in differential diagnosis as the liver and spleen are not covered by intestine.

Palpation is the most important. By it we may be able to determine the location, shape, size and condition of the surface, tenderness and mobility of the kidney. To obtain the best results the patient should be on the back with the head and shoulders considerably elevated, the thighs and knees flexed and the abdominal muscles relaxed. The examiner should stand upon the side to be examined, facing the patient. One hand should be placed under the lumbar region below the twelfth ribs, while the fingers of the other hand make counter-pressure anteriorly at the lower border of the ribs, and outside of the rectus muscle. If the kidney cannot be felt, the patient should be directed to breathe deeply, allowing the breath to escape quickly and without muscular effort. If the hands are approximated at the end of the expira-

tion, the kidney which has not been before felt, may be found to be caught between them.

Practice does much for one in this respect, and it is well when examining patients for other purposes to spend a moment in palpating the kidney on every case where this region is at one's command. The peculiar shape of the kidney, its tendency to slip upward between the grasp of the two hands into its fossa, eliciting greater or less tenderness and often causing a slight nausea, furnishes the examiner with an experience not to be mistaken for anything else, unless it is in rare cases a distended and movable gall-bladder on the right side and the spleen on the left. The latter may be detected by its sharp lower border and notches. If the kidney cannot be palpated with the patient lying on the back, he should be placed in a prone position, and then on either side and in the sitting posture. It must be remembered, however, that if the kidney is not movable and is otherwise normal, frequently it cannot be palpated. With patients of myriabling muscles, or where from sensitiveness or ticklishness one cannot palpate successfully, an anæsthetic may be desirable.

Palpation of the ureters through the abdominal wall is not in their normal condition possible, but a tumor or calculus or a thickened, tender ureter might be detected in a thin subject. That portion of the ureter which extends from the base of the broad ligament inwards and downwards to the bladder may in some instances be palpated through the vagina, especially if it be thickened, dilated or contains a calculus. Likewise the lower portion of the ureter may at times be palpated through the rectum.

Palpation in the bladder through the dilated urethra may furnish much valuable information as to the condition of the ureteral orifices and the distal end of the ureter. The inspection of the ureteral orifices brings us to the consideration of instruments of precision in these diagnoses. Before calling these into play, however, a

full urinalysis is next in order in the process of diagnosis. The urine for a complete physical, chemical, microscopical and bacteriological examination should be a twenty-four hours specimen, or a portion taken from the entire amount, as the urine varies much under the different conditions of the various portions of the twenty-four hours; for instance after eating, following exercise, after resting and after taking large quantities of fluids. The urine should be collected in a sterile container, and contamination carefully avoided. Centrifugalizing the urine for microscopical examination of the sediment saves time and allows us to complete the examination before decomposition occurs. The addition of a few drops of formalin prevents decomposition. The color, odor, specific gravity, reaction, with the degree of alkalinity or acidity, the presence or absence of albumin, sugar, bile, blood, pus, mucus, crystals or fragments are to be determined, and a careful study made of the epithelial elements. The bacteria must be determined as fully as possible by the various methods of staining, examination and cultures, and also by inoculation. The detection of tubercle bacilli, gonococci and other specific organisms is of the greatest importance.

In a suspected case of renal tuberculosis, several specimens should be examined before the search is abandoned, and the examiner must be careful to differentiate between the tubercle and streptococcus bacillus. It is rarely possible to make positive diagnoses from the epithelial cells in the urine, but their careful detection is one of the aids in diagnosis, as for instance the differential diagnosis between cystitis and pyelitis. In the former the pus and mucus which settles quickly contains a large number of bladder epithelia, while in pyelitis the pus contains but few cells, and mostly from the kidney pelvis.

We have noted that it is not always sufficient for the purpose of accurate diagnosis to depend upon the examination of the common urine from both kidneys as col-

lected from the bladder. Likewise it is important for us to learn the extent of the excretory function of each kidney. These facts led to the attempt to obtain the urine separately from the two kidneys.

Tuckmann was the first to succeed in doing this, using an instrument constructed on the plan of a lithotrite, which grasped one ureter shutting off the flow from that kidney, allowing the urine to collect in the bladder from the opposite kidney. Silberman proposed to introduce through a catheter a thin rubber bag, fill this bag with mercury and by this weight close one ureter. Weir tried to compress one ureter through the rectum. Fenwick attempted a double catheter. These and other efforts led slowly to the recognized urine separators in use to-day. Neumann's original plan was to introduce a double catheter into the bladder, and a lever into the rectum, raising a partition between the ureters. Harris' separator is constructed upon this plan; two catheters within a common shaft, allowing rotation of the tips into the bladder pockets about the ureters, effected by raising the central posterior wall of the bladder by the lever inserted in the rectum of the male or vagina of the female.

Luy's recent segregator made with the prostatic curve consists of two catheters between which is a curved metal shaft and a chain acting as a string to the bow of the prostatic curve, this shaft and chain covered by rubber tissue. The instrument is introduced with the curve resting on the posterior wall of the bladder. The chain is tightened by the screw at the distal end, stretching the rubber tissue which acts as a dam between the two ureters.

In 1902 Guyon suggested an instrument which was perfected by Cathelin. Through a slit in the convex side of a catheter-shaped instrument, a fine string is pushed out covered with a thin rubber bag. The septum thus formed will fit accurately the posterior wall of a normal sized bladder. Two fine catheters for collecting

the separated urine are passed through the lateral openings of the main shaft.

Each of these three instruments has its advocates, and with each it is claimed by some to be possible to accurately separate the urines.

With the advance in urine segregation came the early work on cystoscopy and ureteral catheterization, and these two may be said to have advanced together.

Simon was the first to catheterize the ureters, and he succeeded in the female by dilating the urethra with a hard rubber speculum, introducing the finger within the bladder and passing the catheter into the ureter by sense of touch.

Pawlik catheterized the ureters in the female, taking advantage of the vaginal landmarks of the vesical trigone and ureters as guides to the tip of the catheter within the bladder, inserting the finger into the vagina.

Simon's dilatation of the urethra suggested the introduction of a tubular speculum, and Howard Kelly gained a view of the bladder wall, (cystoscopy) using reflected light, and so passed the ureteral catheter.

Rose worked with a modified Simon's speculum with fair success.

Morris attempted to gain a direct view of the male ureter by a larger speculum of the Simon type.

In 1816 Nitze originated the idea of vesical illumination, using a wire heated to a white heat by the electric current, keeping a constant current of cold water running through the bladder to prevent trauma. Now the incandescant light removes this danger. The development in 1879 and later of Nitze's original idea was worked out by Nitze, Hill, Fenwick, Thompson, Boissieu du Rocher, Brenner, Casper, Schustein, Albarron, Otis and Brown.

The cystoscope of today needs no description, and retains the essential features of Nitze's cystoscope, consisting of a shaft, a beak, a light, a window through which the bladder wall is seen, an optical apparatus contained in the shaft, by means of which the image is con-

rected and brought to the eye; with or without an enclosed chamber allowing the passage of the ureteral catheter with the mechanism for controlling the same. The usual caliber of the complete instrument is about 22 French, bend 1° angle 145° .

Cystoscopes differ by giving a direct or an inverted image according as the window is upon the convex or concave side of the angle at the bladder extremity. They also differ in requiring the bladder filled with air or water. Water is the usual agent, and has the advantages that it corresponds to the usual bladder contents, prevents heating of the instrument causing trauma of the bladder wall, may be made aseptic; air on the other hand does not become clouded by purulent or sanguineous discharge from the ureters or bladder wall.

Cystoscopy is a surgical procedure requiring surgical preparation of patient and surgeon, sterilized coverings, solutions and instruments.

Cystoscopy is performed with the patient in the lithotomy position with hips raised. If the methods of Kelly or Prior are to be employed where air is used as a medium without the apparatus for injecting air into the bladder, then the patient must be placed either in the knee-chest position or the exaggerated lithotomy position of Prior, both positions giving a pitch to the pelvic and lower abdominal viscera, causing them to gravitate when with the introduction of the speculum the bladder draws in sufficient air to distend it. The bladder is emptied by a soft rubber catheter and irrigated with sterile water, saline or boracic solution till the returning flow is perfectly clear, and about 300 C. C. of fluid is left in the bladder, or if air is used the bladder is completely emptied. The electric current and light of the cystoscope is tested.

The lubricated cystoscope is introduced easily in the female, while difficulty found in passing the prostatic portion of the male urethra is obviated by the finger in the rectum, raising the lip over the obstruction. The

bladder is now distended with air if the cystoscope is of that type, and the light turned on. A systematic inspection of the bladder is now possible. The ureters are located by their narrow slit-shaped orifices at the posterior lateral angle of the trigonum vesicæ, the intermittent jet of urine assisting the identification. The ureteral catheter is of silk variety, usually about No. 4 or 5 French, preferably 36" long and the length blocked off by different colors; this catheter is slowly passed into the urethra, and if desired up to the pelvis of the kidney, a distance of some sixteen inches.

By means of cystoscopy we are able to diagnose malformations of the bladder, the presence of foreign bodies and calculi, wounds, inflammations, neoplasms, the presence and condition of the ureteral orifices, and with the addition of ureteral catheterization we determine the presence of one or two functioning kidneys, malformation of ureters, foreign body or calculus in the lumen, rupture, inflammation or stricture of the wall, and regarding the kidney, the functioning activity, calculi in the pelvis and the presence of inflammation or injury.

If the cystoscope can be comfortably introduced without producing trauma, and the patient has not been subjected to too long an examination, it can do no harm in the great majority of cases. With the ureteral catheter, however, much care must be exercised or serious results may follow its use. A bladder infected by tubercle bacilli or gonococci is regarded by many as a contra-indication to passing ureteral catheters. Fortunately the majority of infections of the urethra do not ascend to the upper urinary tract, providing there is no obstruction to the flow of urine, and no instruments are introduced, otherwise gonococcus infection of the bladder would be much more common than it is. Likewise infections of the bladder do not readily ascend the ureters, hence gonococcus infection of the kidney is extremely rare. We should be very cautious then that we do not break down the barriers of nature and carry the

infection where it would not otherwise go. Urethral catheterization and cystoscopy should be practiced with great gentleness. No one should attempt it when in a hurry. Careful preparation, steady, painstaking manipulation and a few hours rest and care of the patient following the operation, should form a part of the procedure, for a chill not infrequently occurs even when there has been no infection.

Cryoscopy, the determination of the freezing-point of fluids, as of urine and blood, has in the past few years been added as a means of determining the toxic and metabolic products of disease present in the blood, and osmo-regulatory and excretory function of the kidney.

Since Koranyi, in 1898, showed the diagnostic value of this examination, much of this work has been done in Germany, the most prominent in this field being Koeffe, Lindemann, Küssner, Ogston, Beckman and Friedenthal.

The principle of cryoscopy rests on the fact that the freezing-point varies as the molecular concentration of the fluid. Normal blood freezes 26° C. lower than distilled water; urine from 2° C. to 2.8° C. lower than distilled water.

The lowered freezing-point of the blood indicates increased osmotic tension and decreased elimination; lowered freezing-point of the urine indicates concentration and increased excretory function, and comparison of these two results gives us the osmo-regulatory and comparative excretory function of the kidney.

The instrument as used is that of Beckmann or the modified apparatus of Lindemann or Friedenthal. The apparatus we are using is that of Beckmann-Friedenthal, and consists of a thermometer with a range of 4° C. divided into 1,000 degrees, with a stirring-rod held within the chamber containing fluid to be examined, this chamber separated by an air space from the surrounding freezing mixture of ice and salt.

The freezing-point of distilled water, the zero, is determined and preferably should register between the

limits of 3.5° and 1° of the thermometer. The fluid for examination is then frozen under constant agitation, noting closely the lowest fall of the mercury from which point it rises and remains quiet for a brief time, this last registry being the freezing-point noted. The amount of difference as compared with distilled water is noted, using as a symbol the greek letter Δ delta.

The apparatus and its manipulation is complicated, the possibility of error is large even in experienced hands, the time required is considerable, a matter of several hours. The obtaining of about an ounce of blood is at times objectionable. While the examination of the urine alone greatly lessens the value of the conclusions gained, yet added to the regular urinalysis taken with the microscopical examination of sediment, cryoscopy marks an advance in urinary diagnosis.

So accurate, and so highly respected an observer as Kimmel states that since he has used the cryoscopic test, he has had no death from anuria following his kidney operations.

With the advent of the Röntgen Rays, a strong hope was created in the profession that renal and ureteral calculi could be positively diagnosed thereby, and while at first the work in this direction was more or less unsuccessful, the errors which occurred brought it into disrepute by many operators who failed to find stones which appeared to show in the picture, and did find them when the skiagraph failed to show them. Gradually the sources of error have been eliminated, and now in expert hands the skiagraphs are a brilliant and powerful aid in working diagnosis. It is found that calculi of calcium excrete throw a good shadow, but the uric acid stones throw a fainter shadow, and the phosphatic the faintest of all and their diagnosis is more doubtful. Stout subjects are difficult to skiagraph successfully, and in an individual weighing over 185 pounds, of moderate height, a negative diagnosis should be taken with doubt. Dr. Lewis Gregory Cole read a paper before the Genito-

urinary section of the New York Academy of Medicine last December, in which he states that in order to make a reliable negative diagnosis, the rays of selective absorption must be used. Dr. Cole is about to publish further facts on this point. He insists upon the advantage of short exposures on account of the motion of the kidney during respiration to avoid danger of burning and also fogging the plate by the rays that go around the patient instead of through him. Dr. Cole's rule for patients weighing one hundred and fifty pounds or less is from five to 20 seconds for an exposure. Among other details of Dr. Cole's technique are the following: The tube is first tested by looking through the patient's chest with the fluoroscope. The patient, whose intestinal canal has been previously emptied lies with the back flat on the plate, back of which is some metallic substance, the upper edge of a 11x14 inch plate being at the tenth dorsal vertebra, the small of the back coming in contact with the plate. To do this it may be necessary to flex the knees. A sheet covers the abdomen; the tube is then placed eighteen inches from the plate vertically over the umbilicus. The patient exhales, retracts the abdomen and holds the breath during exposure. If respiration occurs, the shadow of a calculus will be magnified beyond its actual size $\frac{1}{2}$ to $1\frac{1}{2}$ inches. The exposure lasts from fifteen to 45 seconds. Dr. Cole requires that a skiagraph should show the ilia, the vertebrae and their transverse processes clear to the tips of the tenth, eleventh and twelfth ribs, and the psoas-iliacus muscle. As evidence of how exact a science this matter has become in skillful hands, Dr. Cole in one hundred and seventy-six cases failed but once to show renal calculus when it was present, and in two cases he made a possible diagnosis of calculus which did not exist. In one of these, in a man weighing two hundred and seventy-two pounds, the error was due to feces. In the second, a woman weighing over two hundred pounds, the

shadow was caused by gallstones and carcinomata of the head of the pancreas.

Dr. Cole uses a twelve-inch coil and a Wehnelt Interrupter with a heavy platinum point. The X-Ray tube is a heavy anode 8" bulb made by Gundlach.

Since publishing the above Dr. Cole writes me that since his last article in the "Archives of the Roentgen Ray" went to press, he has been able by the aid of these larger tubes thoroughly seasoned and with the compression blend, to show the kidney in subjects weighing over two hundred pounds or more. He adds, this aids materially in the diagnosis of adhesion lesions of the kidney than calculi, and makes the diagnosis of renal or ureteral calculus either negative or positive, absolutely certain; that he has recently shown a stone 1.8" in diameter in the kidney of a man weighing two hundred and thirty-seven pounds, and that he has recently been able to diagnose new growths and tubercular lesions of the kidney. For those most interested in this line, I would refer to an article by the same author which covers the subject very completely. It will be found in the "Archives of the Roentgen Ray," page 275. Among the fallacies may be mentioned defects in the plates, but taking of more than one picture will overcome this source of error. Focal concretions and calcified appendiceal epiphora may throw shadows which are easily taken for calculi, calcareous nodules and arteries or tuberculous deposits, vein stones and sigmoid bones.

It is apparent that all of these procedures, especially ureteral catheterization, the tests of cryoscopy, of thorough and scientific urinalysis and skiagraphy, require practice, skill and time, especially time. One extensively engaged in clinical or surgical work will scarcely find it possible to carry on these investigations to any extent; therefore, let me suggest to the physicians of each city and community that some one or two or more, acquire this necessary skill and equip themselves so that they may be capable of conducting this work for others as

satisfactorily as can be done in the larger medical centers.

The methylene blue test was introduced by Archard and Castaigne in their "Diagnostic de la Permeabilité rénale" Soc. Med. des Hôp. The test depends upon the fact that the normal kidney rapidly excretes this substance, and that the promptness and thoroughness with which this is accomplished, bears an intimate relation to the functioning power of the kidney. To employ the test the bladder is emptied and irrigated. One C. C. of a five per cent. sterile solution of methylene blue is injected subcutaneously. Following this the patient passes water at intervals of one hour, so long as the urine contains blue color. This should appear with normal kidneys within an hour, and for several hours should increase in amount, then gradually diminishing disappearing at the end of thirty-six to forty-eight hours. It will be seen that in order to determine which kidney is at fault, if either, the urines must be separated by one of the means previously described.

The phloridzin test is not new, and according to Morris was described in the Dublin Medical Journal, 1862. It is based upon the fact that phloridzin injected into the circulation immediately produces glycosuria, and that this production is diminished if one or both kidneys functionate improperly. This test then requires urine separation to be of value in determining which kidney is affected.

The diagnosis of movable and floating kidney by the methods previously described is usually not difficult. These conditions are much more frequent in women than in men. Previous history is very important, whether or no there have been attacks of gallstone colic. It is found far more frequently upon the right side than upon the left; in the proportion of twenty on the right to one on the left. It is most frequently confused upon the right side with an enlarged gall-bladder. We must be

governed by the size, shape and degree of mobility, the kidney being characteristically bean-shaped.

It must be remembered that floating kidney produces many reflex symptoms, and floating kidney must be eliminated in several causes of abdominal pain. A typical floating kidney is, as a rule, much more movable than a distended gall-bladder. There are fewer adhesions. A movable kidney can usually be carried up into the renal fossa; not so with an enlarged gall-bladder, which moves in the abdomen in the arc of a circle, the central point of which is beneath the edge of the right lobe of the liver. Furthermore it is frequently possible to palpate the kidney where a distended gall-bladder exists, which should be a distinctive sign.

Although a differential diagnosis is not usually difficult, it may be extremely so. Morris records six cases of confusion between gall-bladder and movable kidney, while most of us in Hartford have seen fully as many.

The diagnosis of renal or ureteral calculus—as in other conditions the previous history is of first importance. Attacks of renal pain characteristic of calculus colic, hematuria, the presence of crystals, calcium oxalate or uric acid, are all suggestive of renal or ureteral calculi. In the presence of these symptoms a careful physical and urinary examination is called for.

The pain of renal colic is at first located in the loin and the lateral and anterior abdominal region corresponding to the side of the kidney. On account of the prolific nerve connections, the pain is at once, or later, transferred to remote distances, as the genito-crural nerve, to the testis or labium and along the course of the ureter. There is a wide range of intensity in the character of the pain from a condition of practically no discomfort whatever in a sleeping calculus to the most excruciating agony in a calculus colic.

Hematuria not of bladder origin is always suggestive of calculus, but may come from other conditions, as tumor of the kidney, tuberculosis, or from a mere pres-

ence of crystals. Its presence or absence is not constant, and it cannot be taken as a distinctive sign. Examination of the urine is important, and will frequently reveal crystals of uric acid or oxalate of lime, blood, casts, nearly always a trace of albumen and renal epithelium. There is usually tenderness over the kidney even if the stone is lying quietly. The tenderness and pain are frequently aggravated by exercise. The ureteral catheter and the wax-tipped catheter of Dr. Kelly are important aids, especially in diagnosis of calculus of the ureter.

Pyelonephritis without suppuration is usually caused by some obstruction in the urinary channel. The condition is frequently ushered in by chills, there is general constitutional disturbance, heaviness, loss of vigor, flatulence, loss of flesh and a sallow complexion; there is evening rise of temperature; there is not usually pain, but a dull heavy ache. Examination of the urine is not helpful, as it usually contains evidence of the pre-existing disease causing the obstruction, as from cystitis, prostatitis or calculus. The disease may be taken for typhoid fever, malaria, lumbago, intestinal indigestion, cholecystitis, etc.

Hydronephrosis may be temporary or persistent, depending upon the behavior of the cause of the obstruction. When temporary, the subsidence having been accompanied by an increased flow of urine, the diagnosis is not difficult. When persistent it may be confused with cystic tumors of the liver, kidney or ovary, for an abscess or for pyonephrosis. In many cases the distension is not sufficient to give rise to a palpable tumor; then the diagnosis is more difficult. So too in a mild degree the pain may be but slight, while if there is complete ureteral obstruction it may be intense, and not infrequently calls for immediate surgical interference. If the contents of the distended kidney is purulent, we have to deal with a pyonephrosis; when in connection with the distension, the tumor which we have had in

hydronephrosis, the urine will be or will have been purulent, and there will be marked constitutional disturbances, rigors, chills, fever or sweating.

The terms pyelitis and pyonephrosis are frequently used synonymously, but in etiology, pathology and symptomatology they may differ, pyelonephrosis being more frequently caused by an ascending infection, while the pyonephrosis may be due to septic thrombi, invasion of organisms from the circulation, causing multiple abscesses which become diffused. The symptoms in this condition are more marked than in pyelitis, the kidney not accommodating itself to the formation and accumulation of pus as safely as may the pelvis of the kidney. In the latter we may have more pus in the urine, but less tumor tenderness or constitutional disturbance.

Perinephritis is frequently difficult to diagnose, and its diagnosis is more important, as it often leads to suppuration and burrowing, spreading abscesses. In addition to the constitutional disturbances which gradually declare themselves as a perinephritis becomes suppurative, we have local symptoms, namely: marked tenderness, pain, constant or paroxysmal or deep seated in the loin and lateral abdominal region, radiating as does the pain from calculus. There is a feeling of weight on the side. The pain is increased by motion, turning over in bed or flexing the thigh. There may be retraction of the testis, or there may be edema of the foot and ankle. This condition must be differentiated from lumbago, neuritis and neuralgia, disease of the spine and hip-joint, typhoid fever, psoas abscess and appendicitis. If the perinephritic abscess is high up, it may be mistaken for pleurisy, empyema or pulmonary abscess. This condition is not infrequently secondary, and therefore, may occur in connection with some of these other various suppurative lesions. The urine will not contain pus, at least not until the perinephritic abscess has broken or burrowed into the kidney, and this fact will sometimes mislead the diagnos-

tician. Lumbago generally produces tenderness on either side of the spinal column, not extending to the front of the renal region, nor does the pain extend down along the course of the ureters, nor is it apt to be accompanied by constitutional symptoms. Neuritis and neuralgia are not accompanied by fullness and swelling. The pain is more intermittent and constitutional symptoms are lacking. From suppurative or other organic disease of the kidney itself, the perinephritic abscess cannot always be differentiated. In these conditions the tenderness is less acute, there is less elevation of temperature and edema of the superficial tissues. The tumor is usually more clearly defined.

In disease of the spinal column pain more frequently extends around the trunk. It is relieved by suspension. There is local tenderness over the spinal column, and the spine is highly sensitive to hot applications. The trunk does not rotate to one side, and the spine is more rigid. With hip-joint disease, if at all advanced, fixation of the joint and pain upon wide excursion is more marked than in suppurative nephritis, and the customary pain and tenderness over the head of the femur, in fact the difference in location of pain and tenderness is distinctive; likewise the common early symptom of pain in the knee is much more frequent than in nephritis. Late in either disease pyous abscess and perinephritic abscess may simulate one another, but in their early history, their locations are quite different, the perinephritis occurring in the loin and on the side of the abdomen; the pyous abscess inclining towards Pott's ligament. The same may be said for the differential diagnosis between this condition and appendicitis. The sudden onset of the appendicitis, the location of tenderness, but late in the suppurative processes the conditions may approach one another and be difficult of differentiation. This confusion will, of course, only arise in event of the perinephritis being upon the right side. The constitutional symptoms of perinephritic abscess

may lead us to consider typhoid fever, but with typhoid there is not the persistent local tenderness and pain in the region of the kidney, and we have spots, distended abdomen, gastro-intestinal disturbances, enlarged spleen, and perhaps the Widal reaction, but I fear we cannot rely very securely upon this.

Tuberculosis of the kidney in its early stages may give but few if any symptoms, and is frequently overlooked until the disease has made extensive headway. The general symptoms are those of any tubercular infection; constitutional disturbances, loss of flesh, hectic fever and sweats. Locally there is frequency of urination, while there may or may not be appreciable changes in the urine. Later the urine will usually contain more or less blood and pus. It is of acid reaction, and the tubercle bacilli, if patiently sought, may be discovered. Pain may be absent, or at least is not characteristic, but the enlarged kidney is usually more or less tender. The cystoscope aids by showing us the ureteral openings, which are usually found swollen and puffing. The condition is to be differentiated from cystitis, renal calculus or pyelonephrosis and new growths, pyelitis and various septic and toxic processes with renal and cystic complications. If other tubercular foci are found, light is thrown upon a suspected tuberculosis kidney. If the cystitis is of tubercular origin, it may not be possible to say that the bacilli did not proceed from the kidney, hence it is important to determine the cause of the infection in the cystitis. It may not be possible to differentiate between pyelonephritis and tuberculosis of the kidney, except by the discovery of the tubercle bacilli, though the personal history and the family history and the general clinical picture may guide us straight to tubercular diagnosis.

With renal calculus there is more tendency to acute renal pain. The constitutional symptoms of tuberculousness are wanting in renal calculus, unless the latter has caused a pyonephrosis. With stone the hematuria is

more likely to be increased by exercise, and the pyuria is generally continuous.

In new growths the hematuria is more marked. Pyuria is less persistent. The temperature range is lower, and the tumor more apt to be palpable.

Tumors of the kidney. Hematuria is the most important symptom in diagnosis of kidney neoplasms. The majority of solid tumors of the kidney are malignant, and these give us a more copious hematuria. The surface of the kidney when affected by malignant growth is usually knobby or lumpy and rarely smooth. It is usually immovable, follows respiration but slightly unless complicated with movable kidney. The ascending colon lies partly in front of the right, and descending colon in front of the left kidney giving a tympanitic note over the tumor. The pain is usually in the region of the kidney radiating to the legs; neuralgia of the lower intercostal nerves; sometimes anesthesia and paresthesia of the legs. Fibrinous exagula which are soft white or reddish yellow, worm-like in size, are common in tumors of the kidney. Carcinoma may occur in early life, which is not usual in other organs. It is more common, however, between fifty and seventy.

Sarcoma attacks children more frequently than adults. Benign tumors of the kidney such as lipomata, fibromata, angiomata and adenomata can only be diagnosed by physical examination and palpation, while with malignant tumors we have cachexia, the loss of flesh, the general decline accompanying malignant disease with a hard and irregular tumor, hematuria and at times enlarged glands. They are to be differentiated from tumors of the liver, of the spleen, of the ovary, from retro-peritoneal glands and from various conditions of the kidney which cause enlargement, pain, hematuria and constitutional disturbances which have been recited.

Hydatid cysts of the kidney are fortunately rare, and the positive diagnosis must rest upon the discovery of the daughter cysts or hooklets in the urine. The tumor may give the characteristic hydatid fremitus.

Perinephric extravasation of urine is usually due to trauma. The symptoms at first may not be convincing, but as the case progresses, the tumor over the injured kidney enlarging, amount of urine entering the bladder being diminished, increasing constitutional disturbance, the patient usually becoming septic, if unrelieved, furnish a chain of symptoms not likely to be mistaken for anything else. Aspiration will frequently clear up the diagnosis. The condition may happen from a rupture of the pelvis or the parenchyma of the kidney without external violence, and the diagnosis be more vague, but such a suddenly forming tumor, with rapidly progressing gravity and symptoms would lead one to a working diagnosis at least.

Primary tumors of the ureter are very rare. Secondary invasive are more common. The early diagnosis is extremely difficult. The cystoscope furnishes important aid by the discovery of vascular fringes or ulcerated thickening at the ureteral openings. Ureteral calculus may exist without being detected or causing symptoms, as in the kidney, or it may give rise to most alarming symptoms, causing complete obstruction of urine. The ease or difficulty of diagnosis varies with the wide range of these symptoms. The methods of detection by ureteral catheter, and by palpation through the abdominal wall, vagina and rectum have been referred to. The ureteral orifices as seen by the cystoscope are likely to be engorged from obstructed circulation or show extravasated blood if the calculus is near the bladder. If the calculus is passing through the ureter, it may be mistaken for appendicitis, acute abdominal obstruction, or possibly for gall stone colic. In the majority of cases the symptoms are too characteristic to be mistaken for these various conditions. In the atypical cases mistakes might occur. The character and the radiation of the pain with the tendency of the calculus to move downward, the dysuria, the sudden subsidence if the calculus is passed into the bladder, the nephroptosis if the ureter is completely ob-

structed, the urine containing crystals, fragments of calculus, blood, casts of the ureter, and later pus mixed with blood are further indications of ureteral calculus. Injuries of the ureter caused in various ways, as stab wounds, pressure from obstetric forceps, severances or ligation during surgical operations for other purposes are serious emergencies, and call for prompt surgical relief. As these wounds have no tendency to heal spontaneously, if such an injury is suspected, the urine becoming scanty with some blood and a tumor gradually forming in the region of the injury, the diagnosis is not likely to be confused with other conditions.

In the diagnosis of foreign bodies, stricture of the ureter, as well as the obstructing blood clot following hematuria, there occurs the tumor formation with its train of symptoms already referred to. Physical examination, the cystoscope and catheter must be called to our aid. The urine becomes whitish, purulent and ammoniacal, and with the early development of cystitis and pyelitis, if they do not already exist.

It will be seen from the foregoing that the surgical diseases of the kidney and ureter have a wide and varied range of pathology, symptomatology and clinical behavior; that they are fraught with early and remote suffering, incapacity and disaster. They may exist as excruciating and dire emergencies, or as painless, insidious disturbances, gradually productive of constitutional symptoms and invalidism. The early and accurate diagnosis is alike important to the internist and the surgeon. It is the medical attendant who has usually the first opportunity to establish the diagnosis; his treatment will be correct or incorrect, successful or unsuccessful in proportion to his skill and care in making it, and the surgeon must realize that in order to have his work respected by the thoughtful in the profession, it must be preceded by a painstaking and scientific diagnosis, carefully recorded; and followed by a report of the pathological findings at the time of operation.

DISCUSSION.

Dr. H. C. Smith: Mr. President and Gentlemen, I will demonstrate and exhibit here some of the newer instruments for diagnostic purposes; and also we have the good fortune to be able to show you this morning a case of a young woman with an enlarged kidney, which will illustrate the points I wish to make in diagnosis, palpation, inspection and skiagraphy. We have taken a skiagraph of this young woman this morning, which shows the stone very beautifully. I think you would be interested to have the patient brought in on a table, and a few of you palpate the kidney and then see the skiagraph.

I want to take the remaining two or three minutes to have some of you feel of the kidney of the patient who has just been brought in.

This young woman has had attacks of calculus colic, not very severe. She has had hematuria, and hematuria points to tumor of the kidney, tuberculosis or calculus.

Now during the discussion if any one wishes to palpate this kidney, I shall be glad to have him do so.

Dr. Godfrey: Mr. President, I would like simply to call attention to one fact in an examination of the urine of a patient having kidney trouble, it is always wise to examine the urine prior to palpating the kidney, as in a large percentage of cases after a thorough palpation of the kidney you will almost invariably find albumen present.

Dr. Boucher: I want to refer briefly to a few points the doctor made. One is in regard to the Harris separator, which is somewhat of a help in separating urine, but still I think in the hands of most men it has proved more or less a failure. In the female we can get fairly good results. It is almost impossible to get an accurate specimen of urine without the two parts getting mixed. Personally I have had very poor results with it.

In regard to the cystoscope, as the doctor says, there are a great many on the market. In the female I believe

that the Kelly cystoscope leads them all. It is simple, and in the hands of the inexperienced we can do better and safer work with the Kelly cystoscope than with any other form. The only objection to it is the position, and the position is certainly not very desirable. The catheterization of the ureter which the doctor referred to may be of considerable benefit in many cases, but I think it is a rare thing that we are justified in catheterizing the ureter. Personally I feel responsible for a case of tuberculosis. I catheterized the ureter. Found pus coming from one ureter and the other one clear. After removing that kidney which was broken down and full of tubercular deposit, the patient made a perfect recovery and left the hospital well. Six months afterwards she turned up with tuberculosis of the other kidney. Whether the catheterization had anything to do with it I do not know, but I have always been suspicious of it. Where we want to separate the urine it is usually in cases where there are tubercular bacilli or pus present. I do not believe that we are justified in passing a catheter through a pussy bladder. And again, I do not think it is very often necessary, because if we have pus in the urine, as a rule we have symptoms that are marked in one kidney, and any operative work can be done safely, and I think even safer than to catheterize the kidney or the ureter.

In reference to the Roentgen rays, I believe there are few aids to diagnosis as valuable as the Roentgen rays at the present time. In a recent visit to the Academy of Medicine in New York, where they do a great deal of that work, I saw some fifty or sixty plates exhibited showing the most beautiful specimens of calculi in the kidney and the ureter. They have the work there down to such a nicety that they can not only photograph a small calculus in the kidney, but even in the extreme ends of the ureter.

The closing point I wish to make is in regard to our physician being equipped for this work. As you are all

aware, it is impossible for a man in general practice to do X-ray work, catheterization and cystoscopic work. I think in every city there ought to be at least one man equipped to do that work thoroughly, and certainly the other members of the profession should support him. If we had in this city one man well equipped to do this work, he certainly would have a great deal of it, and at the present time it is one of the most valuable aids in our diagnosis of kidney disease.

Dr. Storn: The exquisite paper by Dr. Smith comprehends the subject so thoroughly that amplification is scarcely necessary. But I would like to emphasize the importance of the ureter-catheter as the most accurate and available, as it is the most recent, means of diagnosis in our hands.

True we can palpate the kidneys and so gain some idea of their relative size and contour, but if a kidney is larger than normal or than its fellow, it is not necessarily diseased. It may really be the healthy one, which has enlarged as a result of increased activity due to disease in the other non-palpable kidney, which is causing the trouble.

Radiography is a splendid aid to diagnosis,—when positive pictures are obtained. And especially in cases of calculi we get thus their exact location. But how frequent is it, that a negative picture is all we see, though all the chemical symptoms point to stone, and then we are no better off than before taking the X-ray pictures.

If we can see as well as feel a pathological condition, we are fairly certain that it exists.

If with a sound or stone searcher in the bladder we feel a roughness, a grating or clicking, we rightly conclude that we have to deal with a stone, and by a cystoscopic examination we see it and can determine its size and outline.

If by means of the ureteral bougie or catheter we feel in the ureter such a roughness, grating or clicking, that too is a sign of calculus higher up in the urinary tract;

and by measuring the length of catheter introduced we determine its location at any point in the ureteral canal, or in the renal pelvis.

Where the sense of touch gives us no positive information, we can make use of the wax-tipped bougies designed by Dr. Howard Kelly. The wax-coated ends of the catheter rub against the rough stones and produce scratches which we can see.

Dr. Poller Cabot of New York has recently arranged a neat instrument which will help us in cases where both touch and sight have failed, by means of a filiform which passes through the ureter-catheter. The outer end of this is attached to a microphone which magnifies the sound, and this is conducted to the ears by tubes, like in a Bowen stethoscope. When the upper end touches a stone a clicking sound is heard.

The fact that no other means than ureter-catheterism enables us to determine the patency of the ureters, and the functional activity of each kidney makes this method of diagnosis the most important of all. And no diseased kidney should be operated upon at this day until the condition of the other one has been thus determined by the ureter-catheter.

Dr. Howe. Mr. Chairman, I have recently had an experience in the necessity of exactly delimiting the healthy kidney, if there is one, and it is done by segregation. I think it is perfectly practical in females for any surgeon of experience to become accustomed to using the segregator, but it takes time as Dr. Smith has said, and after hearing Dr. Steen and talking with Prof. Kelly of Baltimore College, I readily appreciate how much more apt and practical a man who is accustomed to spending time and has all his appliances at hand is in these cases, than we as surgeons who haven't time to turn around, kindly, and examine a case properly. It gives me great pleasure to witness this fine exhibit, and to have the point of the use of the skiagraph illustrated and forcefully called to our attention. It is a fact that the use of

the skiagraph in cases of renal stone must be by an expert. We who have a skiagraph for ordinary cases are not competent to take pictures properly, and only one or two men in this town, probably, have the necessary apparatus and the patience and the skill to take and develop a proper picture of a renal stone. It is entirely different work from ordinary skiagraphic work, and I am very glad to hear that point brought up.

Dr. Rand: I would just like to mention the modification of Dr. Kelly's cystoscope, which can be used for collecting urine from either ureter, and avoids the danger of causing infection as may be caused in cases of cystoscopy by catheterizing the ureter. He simply has a little spoon-like catheter and he holds it under the uretral orifice and catches the urine and allows it to run out into a receptacle.

Dr. Smith: I was glad to see that our President examined the patient while facing the patient. I think that is better than standing around to one side. As to the dangers of the ureteral catheter, if I had had more time I should like to have spoken on the contra-indications. Of course we would not use a ureteral catheter through a tuberculous or gonorrheic bladder, because you will unquestionably carry the infection beyond the bladder. Fortunately nature throws out very good barriers to intercept infection. You know how frequently the ureter is infected, and you know how very infrequently the kidney is infected with the gonorrheus. The gonorrheus has only been found in the kidneys in two or three instances. So that the ureteral catheter must be kept for cases of comparatively clean bladder, unless you have tuberculous infection or other infection above the bladder.

In relation to the skiagraphic work, I would like to say that the stone which you see there is enlarged by the skiagraph because the doctor in his work allowed a long enough exposure for respiratory excursions to take place. While this is a very excellent picture and I am

delighted with it, still I suppose the most scientific manner of taking these pictures is to expose from five to forty seconds, the patient holding his breath. The calculus is not as large as it is shown in that skiagraph.

I am very glad that Dr. Rand spoke of the improvements made by Dr. Kelly.—I should have spoken of it if I had had more time.—In his method of getting the urine from each kidney, and there are many other points I would like to take up, the subject is so interesting and so large, but I have occupied too much time already. I thank you, sir.

ACUTE INTESTINAL OBSTRUCTION: RESECTION OF FIVE FEET; RECOVERY.

DANIEL F. SULLIVAN, M.D.,

HARTFORD.

Definition.—By intestinal obstruction is meant an arrest of alimentation and digestion, an occlusion of the lumen of the bowel, irregular or arrested peristalsis, impeded or strangulated circulation.

Classification.—Intestinal obstruction may be divided clinically under two heads, acute and chronic, terms expressive of the duration of the disease and of the intensity of the symptoms, but often leading to misinterpretation of the etiology. A classification based upon etiological pathology under the four following heads embraces all forms of intestinal obstruction; (1) From without by compression; (2) From within by obliteration; (3) By structural changes in the intestines (Langstein); (4) Adynamic or paralytic.

General Etiology.—1. Mechanical obstruction of the bowel by compression from without may occur from a variety of causes, the most common of which are; through congenital apertures and into peritoneal fossae, through mesenteric slits or diaphragmatic rents. These constitute the forms of internal hernia. Strangulation frequently occurs by congenital or adventitious bands, diverticula, and peritoneal adhesions. Compression may be due to twisting or torsion of the gut-valvulus; also to intussusception. Neoplasms and wandering viscera may likewise occlude the intestines by pressure. 2. Obstruction may occur from fecal impaction, foreign bodies swallowed, gallstones, enteroliths, and parasites. 3. Structural changes in the gut-wall itself not infrequently lead to obstruction. Cecal contraction occurring as a sequela of tubercular, typhoid, dysenteric,

syphilitic or malignant ulceration may so narrow the lumen of the bowel as completely to occlude it. Cysts and neoplasms growing into the caliber of the bowel mechanically obstruct it. 4. Adynamic obstruction is always the result of paralysis, and may occur from a variety of causes, the most conspicuous of which are septic infection and mechanical injuries. Through congenital aperture, into normal peritoneal fossa, through mesenteric slits or diaphragmatic rents; strangulation by congenital or adventitious bands, diverticula, and peritoneal adhesions; twisting or torsion of the gut or its mesentery, volvulus, and intussusception; neoplasms and wandering viscera; fecal impaction, foreign bodies swallowed, gallstones, enteroliths, parasites, etc.; cicatricial contraction as sequela of tubercular, typhoid, dysenteric, syphilitic, or malignant ulceration; cysts and neoplasms growing into the caliber of the bowel; paralysis due to septic infection or mechanical injuries.

General Pathology.—Intestinal obstruction, irrespective of its causes, is always followed by a series of consecutive pathological changes (Senn). Their order of development and intensity of action depend upon the cause; but certain destructive tendencies occur, irrespective of the character of the obstruction. In simple mechanical occlusion of the lumen of the bowel, retarding the passage of bowel-contents, a portion of the gut below the obstruction is empty and contracted. That above is distended with gas feces, circulatory changes develop from the compression of distention, and muscular paresis and infection from lowered resistance occur as certainly under these circumstances as they do in the most pronounced form of strangulation.

In chronic stenosis of obstruction, hypertrophy of the bowel-wall above the stricture is the natural result of excessive peristalsis and increased vascularity. This applies equally well to all parts of the alimentary canal, but the clinician is more familiar with it in the changes in the stomach incident to pyloric obstruction.

In all obstructions of a loop of bowel resulting in its strangulation, the effected portion becomes rapidly distended from the disturbance of circulation and the decomposition of intestinal contents. The gut loses its power of contraction, peristalsis is abolished, and the gross lesions are pronounced. The distended bowel is deeply congested, of a dark-red hue, and ecchymotic spots appear over its surface, evidencing the transudation from over-distended capillaries. The mucous membrane and underlying tissues become the seat of gangrenous inflammation. It is presumed that in the strangulated portion the circulation is brought to a stand-still; therefore, the subsequent changes which take place are brought about by the activity of micro-organisms. "Intestines commonly contain various species of microbes, none of which are capable of producing disease under ordinary conditions. Two of the species, however, are known to be extremely powerful pathogenic agents when the tissues offer the peculiar conditions required for their growth. The first, the *bacillus of malignant edema*, finds in a portion of the intestine so strangulated almost ideal conditions for rapid growth. The second, *bacterium coli commune*, is extremely likely to invade the strangulated intestine," (R. M. Buchanan). It is by the action of these germs and the poison they elaborate that there is quickly developed progressive edema, multiple ulceration, gangrene, perforation, and septic peritonitis, conditions expressed by clinical phenomena which cannot be accounted for upon the ground of simple arrest of a function of the intestines, defecation.

In all forms of acute obstruction, but more especially in that from incarceration the enlarged loop is filled with serous fluid. This is largely a transudation, the result of venous stasis, and is not ingested matter. Transudation takes place from both the serous and mucous surfaces, and hence it is that we frequently find an effusion of free sanguinolent fluid in the abdomen. "And this

ascites must not be overlooked in the examination" (Sarrasin).

Intestinal Strangulation by Bands.

Definition.—We group under this head those cases of intestinal obstruction attributable to bands, congenital or adventitious; peritoneal adhesions; vitelline remains; abnormally attached viscera; mesenteric splits, and diaphragmatic rents.

Frequency.—Among one thousand deaths from intestinal obstruction Mr. TIERCE found that two hundred and fifty were due to strangulation by bands and through apertures. The frequency with which peritoneal adhesions and bands cause intestinal strangulation is variously estimated from ten to thirty-five per cent. Statistics gathered in the last score of years, the days of peritoneal invasion, will no doubt place this well in front as an etiological factor.

Etiology.—It is a common post-mortem observation to find bands, cords, belts, and veils traversing various portions of the abdominal cavity, unmistakable evidence of pre-existing localized adhesive peritonitis, the result of appendicitis, peri-uterine inflammations, cholecystitis, and post-operative sequelae. The formation of adventitious adhesions is readily comprehended. Following an attack of plastic peritonitis, soft adhesions of adjacent peritoneal surfaces form; if resolution does not speedily take place this may unite neighboring coils of intestine to each other, to the parietes, or to a solid viscus. Opposed peritoneal surfaces may be so anchored that the subsequent mobility due to exercise and function draws and pulls upon the adhesions, narrowing, lengthening, and rolling them into cords and bands, which finally become tough and unyielding (Reese). These peculiar bridges may be congenital abnormalities; or equally dangerous and identical mechanical conditions may be due to slender viscera abnormally attached, or to the diverticulum of Meckel.

These abnormal attachments may ensnare and strangle the intestines in many ways. As some one has said, it is curious to observe the extraordinary ingenuity exercised by the bowel in finding various ways to develop an obstruction. Whether around, over or under is a matter of anatomical interest only. Some violent effort may precipitate the changed relation, just as an external hernia may appear after exertion, and immediate strangulation develop; or the constriction may be only partial at first, the subsequent changes in the incarcerated loop tightening the constricting cord to absolute strangulation of the gut.

Age.—Strangulation by bands is more common in young adults, is rarely met with in advanced life; the author, however, encountered it in a man sixty-three years old.

Sex.—Statistics prior to 1890 show this form of obstruction to be somewhat more frequent in males. It is quite possible that later records show a relatively equal proportion between the sexes.

Pathology.—The ileum is the portion of the intestine usually involved in this form of obstruction, though, of course, no part of the small intestine enjoys immunity, and the flexures of the colon and cecum may become strangulated. The amount of bowel embraced may be only a small knuckle of several feet. If the constriction is only moderately tight at first, the violent peristalsis excited draws more and more bowel with its mesentery into the blockade. The extreme traction upon the mesentery, and its constriction are chiefly accountable for the rapid changes that occur.

The local and general pathological changes consequent upon strangulation have been thoroughly considered under the head of general pathology.

Symptoms.—If we merely assume that there is intestinal strangulation without an effort to investigate its probable cause and location, we give but little encouragement to the cultivation of diagnostic acumen.

In sixty-eight per cent. of these cases there is a history of previous attacks of peritonitis (Treves). Carefully-taken clinical histories will reveal previous intra-abdominal troubles sufficiently often to reward the investigator. It was perhaps an appendicitis, tubal or ovarian inflammation, a gastric or duodenal ulcer in typhoid fever with deep but not perforating ulceration. Nor must we neglect to refresh the memory of a blow or injury to the abdomen, followed by a few days of pain and tenderness and then forgotten. If the history is blank to all this line of inquiry the surgeon may assume with some degree of reason that the constricting cause is perchance a hernia through the foramen of Winslow or into one of the peritoneal fossae, intra-sigmoid, retro-cecal, or duodeno-jejunal, or it may be due to Meckel's diverticulum. If the patient presents congenital defects the probability of the latter cause would be strengthened. It is needless to argue against the inestimable advantage of the consideration of these possibilities if operation is contemplated.

Mode of Onset.—The symptoms of strangulation are usually violent and sudden in the onset, without pronounced warning.

Pain.—The patient is suddenly seized with acute abdominal pain variously described as griping, twisting, or colicky. It is always severe, even agonising. The colicky waves or paroxysms, the griping, is but an expression of the violent contortions of the intestines to overcome the resistance to normal peristalsis. It is thoroughly established by Mr. Treves as a clinical fact, that the more absolute the obstruction the less intermittency to the pain; hence, in the onset the pain may be distinctly paroxysmal, but as the halter tightens, the pain becomes persistent and continuous.

The seat of pain in this form of obstruction is no guide to the seat of obstruction; as the ileum is the part usually involved; the impression is conducted through the superior mesenteric plexus to the solar plexus, and from

this center it is recognized. Therefore, in this form of obstruction the pain is referred, and is located by the patient about or a little above the umbilicus. A notable exception to this rule I observed and reported to the meeting of this Society, 1899. In this case the pain and tenderness were felt at McBurney's point, and upon this misleading sign perforative appendicitis was diagnosed. At operation a false ligament was found passing from the bowel to the mesentery near the center of its vertical attachment. While pain is a conspicuous and constant symptom of strangulation it may be modified greatly by the temperament of the individual. The sudden cessation of pain can only mean the spontaneous release of the strangulated gut or impending dissolution.

Vomiting.—Early vomiting is a reflex or nervous symptom, and its occurrence as an initial symptom depends largely upon the amount of food in the stomach. Soon after strangulation is effected other conditions act their part. The reverse current of anti-peristalsis, the distension of the intestine, the rapid accumulation and decomposition of the contents of the bowel, its noxious and irritating effect directly upon the mucous membrane of the intestines and stomach, toxemia, and peritonitis, are causative factors. Vomiting may come on with, or even precede pain; it is justly regarded as a constant and conspicuous symptom in strangulation of bands. Its occurrence does not materially aid us in locating the obstruction further than the recognized general law, the nearer the stomach the obstruction, the earlier and more persistent the vomiting.

The character of vomiting is: First, the contents of the stomach, the bilious matter; later, brown or chocolate-colored fluid. The vomiting of ferulent or stercoraceous matter, which is the only pathognomonic vomiting of obstruction, does not usually occur earlier than the fourth day. A patient persistent, senseless vomiting, accompanied by violent retching is one of the most dis-

troubling symptoms in the early days of strangulation. Later, the sensibilities are blunted and the act of discharging is purely a mechanical one; the patient often expresses the greatest relief, the regurgitant effortless vomiting is a striking feature of the closing scene of intestinal obstruction.

Constipation.—From the inception there is absolute constipation. All the bowel to the distal side of the obstruction, if not in a state of positive paresis, is relaxed and inert; consequently there is no bowel movement of either feces or gas. It is well to bear in mind that some fecal matter, the contents of the lower bowel, may escape after high injections, and that a nutrient cream, coagulated and formed, close to resembling fecal matter, may mislead the attendants.

Shock or Collapse.—Second only in diagnostic importance to the especially conspicuous symptoms, pain, vomiting, and constipation, is the general condition in acute strangulation of the intestines. The patient's general expression soon bears evidence of the gravity of the condition. From the start he "looks ill," mental anxiety and physical distress are often characteristically depicted in the so-called "*facies abdominalis*." Early in the history of strangulation the signs of profound shock, even to collapse, develop; the pulse is weak and frequent; temperature rises not more than a degree from normal, is frequently subnormal; respiration is hurried and shallow; extremities are cold and fixed; cold perspiration in great beads stands upon the brow. There is great thirst and restlessness.

These symptoms grouped by Gubler under the term "*abdominal peritonism*," are generally pronounced. Yet it must not be understood that the advent of every case is stormy and terrible. I have seen complete strangulation for two days the gut almost secured by the constricting bands, and yet the patient's pulse and temperature had varied but slightly from normal. The intensity of the shock depends much upon the sensitiveness of

the patient and resistance to infection, yet sooner or later in every case of intestinal obstruction the inevitable collapse appears.

If early, it may be largely attributable to injury to the mesenteric nerves and to their direct connection with the pneumogastric. We could not in any other way rationally account for the great impression upon the circulation and respiration. Collapse occurring late, that is, after the general symptoms of obstruction have existed for some days, points only too surely to perforation, gangrene, or the advent of general sepsis. The rapid emaciation and extreme prostration that afflict these patients with acute strangulation is erroneously attributed to the rejection of nourishment only. We must keep in mind known pathological facts. In intestinal obstruction there is a great drying-out process rapidly going on in the body, affecting naturally, at first, the viscera of the abdomen. They are dry not only because they are deprived of fluid for absorption, but there is free transudation of serum into the intestine on the proximal side of the obstruction, and this is constantly vomited, and represents so much water withdrawn. The absorption of poisonous products, evolved by the organisms now in possession of the tissues of low resistance, is perhaps the most potent cause of the great vital depression.

We would naturally expect to find, with the condition above described, a marked diminution of urine; and there is an increased amount of indican, if the strangulation is in the small intestine.

Physical Signs, Inspection.—Assuming that the obstruction, except in very rare instances, is in the jejunum or ileum, there is but slight meteorism developed. The constant vomiting and eructation of gas, as Mr. Treves explains, serve to relieve in a great measure the distension. When, however, several feet of intestine are encased, then an asymmetrical distension may appear very early. When peristalsis is subdued and peritonitis

develops the abdomen becomes distended, noticeable at first in the epigastric region, later becoming general; but it is unusual for meteorism to attain any conspicuous degree in this form of obstruction. In very thin subjects the waves of peristalsis and patterns of intestinal coils have been observed.

Palpation.—The abdominal wall is flaccid. At first there is some general hyperæsthesia, but no distinct spot of tenderness until local peritonitis supervenes; in that area the muscles are resisting and tenderness is marked. We cannot outline any distinct tumor, hardness, or induration. Muscular rigidity appears as a sign in many clinical records of cases of sudden strangulation; I have not observed persistent rigidity, the muscles contract during paroxysms of pain, then immediately relax.

Perussion.—In the first few hours perussion is practically negative. Soon moderate tympany appears. From the strangulated intestine and the adjacent irritated peritoneum there is poured out into the peritoneal cavity sero-hæmorrhagic fluid; this free peritoneal fluid is detected early by dullness in the loins, and it rapidly increases. Appearing, as it does, before marked meteorism, it is easily detected; and if the patient is examined frequently, its increase hour by hour may be noted. Carl Boyer regards the "quietness and rapidity" of the effusion as diagnostic of strangulation. In a patient of Dr. Dean, of South Windsor, upon whom I recently operated, strangulation occurred at 2 a. m.; at 12 m., ten hours later, free fluid was first detected; at 6 p. m. it had markedly increased. I operated at 10 p. m. and found at least one quart of bloody serum in the cavity. The strangulation was due to the appendix encircling the ileum at its cecal junction. When a loop of intestine is incarcerated it becomes distended with fluid, and may in this way rise to local dullness. In one such instance a case referred to me by Dr. Naylor, the suddenly developed tumor, the well-defined dullness, and the general symptoms resembled an ovarian cyst with torsion

of the probe. Many of the doctors present are familiar with these cases.

Auscultation.—Auscultation gives no information except in cases far advanced, with large accumulation of fluid in the incarcerated coil; then we may hear tinkling or gurgling, or, if the patient will permit the necessary force, we may elicit clapotage.

Differential Diagnosis.—The mode of onset and early symptoms of intestinal strangulation by bands resemble many acute intra-abdominal conditions, in all of which the same general surgical indication, laparotomy, obtains. Yet precision in diagnosis contributes materially to the perfection of the technic and to correctness of prognosis.

Gastric or Intestinal Perforation.—The symptoms that attend the occurrence of gastric or intestinal perforation are those of abdominal peritonitis, so conspicuous in intestinal strangulation. Upon the history of the patient we must largely rely for guidance. An anamnesis of gastric, duodenal, or intestinal ulceration will direct further investigation to the seat of disorder. If perforation occurs from latent ulceration, in which all pre-existing symptoms are wanting, the difficulties of diagnosis are increased. Yet, even then, closely applied tests may solve the problem. Localized tenderness is usually well-marked in perforation; muscular rigidity, persistent, either localized or general, is rarely absent; abdominal distension with effacement of hepatic dullness develops early, after that it may cease—at least, be an inconspicuous symptom until the advent of peritonitis. In all forms of perforation feces and flatus may be discharged until bowel-action is inhibited by peritonitis. Hematemesis or melena would be of infinite diagnostic value.

Perforative or Gangrenous Appendicitis.—Secondary, as these conditions usually are, to pre-existing disease of the appendix, the knowledge of previous attacks directs our attention to the appendix. The discrimina-

tion in the intensity and character of pain, the frequency of vomiting, and the degree of shock, are too *late* to rest a diagnosis upon; but the localization of the pain, the point-tenderness, and the muscular rigidity, are signs rarely assumed by intestinal obstruction. Temperature, so much discredited as a diagnostic symptom of appendicitis, is, nevertheless, of greatest differential diagnostic value in distinguishing appendicitis in the first twenty-four hours from intestinal strangulation; a fever of over 101° within this time practically precludes intestinal strangulation.

Biliary and Renal Colic.—These merely require mention for differentiation. The character and duration of the attacks, and the functional disorder that attend them should eliminate them.

Prognosis.—Death inevitably occurs in from three to seven days. The patient succumbs to exhaustion or to peritonitis from gangrene and perforation. The probability of release of the strangulated bowel is too small for consideration.

Surgical Indication.—The recognition of intestinal strangulation demands immediate operative intervention. With the abdomen freely opened, the constricting cause is detected. Greatly distended intestines should be relieved of their contents through incisions. The integrity of the bowel must be determined; resection may be required. Provision must always be made for drainage after operation for intestinal strangulation.

Patient.—K. C., strong healthy girl, sixteen years old, admitted to St. Francis Hospital February 30th, 1905. Suffering from intense pain in abdomen.

History.—Two years ago was thrown with great force from her bicycle striking a sharp corner of curbstone perforating the abdominal wall, tearing the small intestine, recovered from operation, wound suppurated. An unusually large ventral hernia developed and was operated upon with success one year after the date of injury.

February 7th, 1906. Slipped on ice while walking down a hill, but succeeded in saving herself from falling. Reaching home patient felt faint, complaining of a pain in her left side; in the morning pain which was paroxysmal increased accompanied by vomiting. Dr. Liden was called to see her at two in the afternoon. Patient in intense pain continued in character over entire abdomen and vomiting a chocolate-colored fluid. I saw patient in consultation thirty-six hours after accident.

Examination.—Pulse 120, temperature 102°, respiration 20, vomiting persistent, fecal in character, and tumor was found over sigmoid flexure. Palpation dull over an area about the size of the hand. Rest of abdomen was tympanitic. Peristaltic wave absent, muscular rigidity very marked, patient's general expression indicating the grave character of the lesion. Patient was removed to hospital and prepared for immediate operation.

Operation.—An incision was made over the tumor and the peritoneum poured out a small quantity of bloody-looking fluid, and revealed a black gangrenous bowel. A large coil of intestine was found twisted upon itself, and a very distinct band of tissue around the pedicle of twisted intestine. Clamps were immediately placed, well into the healthy gut. Resection was made and a lateral anastomosis with Murphy button. Anesthesia thirty-four minutes.

Result.—Patient in a critical condition for eighteen hours after operation. Bowels moved on the fourth day without aid. Convalescence was marked and recovery uninterrupted, patient not even manifesting as much disturbance as is commonly found after the most ordinary laparotomy. The highest temperature 101°. The button was passed on the nineteenth day and now sixteen days after the operation the patient is sitting up and practically well enough to be discharged. I attribute success in this case largely to the use of the Murphy button, and the valuable assistance rendered by

the House Surgeons, Dr. Turbitt, Romayne, and to the care-taking anaesthesia of Dr. Romayne. Having no data to refer to the patient was placed in the entire charge of Sister Germaine, and to her zeal and skill, this little patient is largely indebted for her life. An attempt to make a suture anastomosis would I believe in this case have been fatal. I present the case because of its unique character and points of interest, which show to what a frightful extent the abdomen may be invaded, and a victory scored.

To Dr. Harris of Norwich, I am indebted for the following collection of cases, where large resections have been made with recovery. It may prove interesting.

Trumbleta,	42 inches
Billsdth,	45 "
Elliott,	48 "
Roux,	48 "
Kocher,	46 "
Schwallach,	73 "
Hinterstrasser,	76 "
Harris,	84 "

And one case reported by Kudal mentioned by Kocher where 11 feet was removed. Do not know the result of this case. The young lady now whose intestines you see in the jar gives no sign of its absence, and no symptoms of any kind that indicate the slightest trouble. As far as I know, and as you may see, she is perfectly well.

SKIN GRAFTING.

AUGUSTIN A. CRANE, M.D.,

WATERBURY.

Text books give scant space to skin-grafting. Descriptive articles on the same subject are few. This is probably as it should be, because it may be argued that those who are familiar with the technique need no description, while those who are not should not be expected to essay the work on the strength of their reading. The process is, however, of such enormous value and the results obtained so startlingly good, even in the hands of a non-expert, that it should be more frequently employed. The contra-indications are many and prohibitory, but definite and limited. The precautions are absolutely essential and vital, but readily mastered. Ignorance thereof will result in dismal failure.

A few months ago I received a telephone message as follows: "Meet me in about half an hour at the room of an Italian laborer in his boarding-house. He mangled his hand nearly to pieces six weeks ago; some of it is gangrenous, much of it is separating freely, and the whole business is septic. I am afraid he will lose it unless we skin-graft it right away. Come up and graft it, and I will see that you are sure of a ten spot for your trouble."

The disappointment at my lack of acquiescence in this fascinating programme was pitiful. I endeavored to explain a little about the necessity for inspection, preparatory treatment and subsequent care, but found I made no headway. I later learned incidentally that an operation for skin-grafting was performed the following morning in that locality. I never heard the result.

Of the various methods of skin-grafting employed, those by Wolfe and Hirschberg are not properly graft-

ing, but transplantation of the whole skin, with all its elements. Krause of Altona, 1896, used a similar procedure. He found that even the presence of some subcutaneous fat was not a bar to success. Where the whole thickness of skin is used, the elastic connective tissue produces great shrinking, a condition for which it is necessary to make full allowance in estimating the size of the flap. In using these methods, it has been found unnecessary to suture the flaps into place, as pressure has been found to be a sufficient means of retention; though by making angular the ends of the gaps from which skin is removed, the wounds thus caused can advantageously be sutured.

In this technique it is imperative that the parts should be dressed dry and kept dry. Even though the flaps may discolor and blister, they may still be viable. These methods of deep transplantation are called for only where the skin is required to withstand greater resistance than thin grafts will sustain.

Reverdin's method of skin grafting, or more properly epidermis grafting, is now practically discarded in favor of the more brilliant and rapid Thiersch process, but is entitled to mention for the sake of the valuable aid it has been in shortening the time of healing of large surfaces, at a period when it was the best operation known. The process consisted of placing bits of epidermis, no larger than a pinhead, about twice their diameter apart, on the prepared surface, and keeping the locality wet in oil solution. The process was tedious and uncertain, and even when the grafts "took," the resulting cicatrix was no less subject to contraction than that secured by spontaneous healing, and was even more subject to unsightly breaking down.

Twenty years ago, the "shaw" cases at the New Haven Hospital were two factory girls whose scalps had been sore off by machinery, and whose alternate progressions and relapses under this treatment were exhibited to successive generations of students and visitors.

Rudolph Matas, New Orleans, in an article in the *International Text Book of Surgery*, states that pure cuticle removed from the body by slitting, blistering, burning, or in any way, if kept sterile and dry, will survive indefinitely.

Dr. Z. J. Lusk, Warsaw, N. Y., has applied grafts from such material, from hundred and eighteen days after removal from the body, and proved their viability. They are applied in scales about one-twelfth inch in size, one-half inch apart, and then covered with sterile gauze saturated with 12½ % Balsam Peru in castor oil, and left for ten to fifteen days. If this is as practical as it sounds, I see no reason why enterprising dealers could not supply desiccated sterile epidermis in any amount, as they do kangaroo tendon or Cargile membrane, and we should have no excuse for ever being without a full supply on our shelves, available for any emergency. The fact is, however, that, while we are informed in great detail of the case where Dr. Lusk did make such grafts grow, we are not given specific information in regard to the hundreds of cases in which he and others did not make them grow. We do not question that it has been done. All of us have obtained union where a finger has been cut off and dropped on the floor, but such is not the rule, and we can not look for such results as a routine occurrence.

In the present status of our knowledge of skin-grafting, all discussion of the subject in its broadest scope must be merely preliminary to a description of the one method now most successfully and generally utilized—that of Thiersch of Leipzig, who described it in 1874, although it had been used by Ollier in Lyons in 1872.

The three features which make this pre-eminent over all others are the speed with which it can be performed, the quickness of healing, and the freedom from cicatricial contraction. For this work no special apparatus is required, and no extensive experience or skill. Dexterity in shaving off the strips of skin can be acquired only

by practice, but it will develop rapidly. The strips to be shaved off may be as long and as wide as the shape of the part attacked, and the stroke of the razor, will permit. They should be as thin as the razor will shave, but even then they will be found to contain all the necessary elements for reproduction, namely: epidermis, rete mucosa, and a part of the cutis vera. Vascular connection is established in eighteen hours.

Since Talersch's first demonstration thirty years ago, there has been no material modification in the method of removing the grafts or of applying them, but there have been many changes in the accepted views of the nature of soil requisite for their support, the variety of material available for their supply, and especially in the details of dressing and after-treatment.

Dr. Mixer of the Massachusetts General Hospital has devised and successfully used an apparatus for shaving off the graft, by using small sterile boards to produce tension on the surface.

Dr. McBurney has been successful in separating long patches of uniform width and thickness by means of specially devised hooks which he inserts into the skin at each end of the proposed area of denudation for the purpose of securing firmer and more uniform traction.

Dr. Robert Abbe instead of carrying the grafts on a razor, has recommended floating them in salt solution onto pieces of gutta serena tissue, raw surface up, and applying them by inverting the same over the part to be repaired. I have found this a great aid in securing accurate coaptation without sliding, and in avoiding inversion of the edges without tedious manipulation. Thin blocks of wood have also been advantageously used upon which to float the gutta serena strips and their accompanying grafts. These are all, however, minor details, and matters of individual convenience. The only point is to remove and re-set the grafts as neatly and quickly as possible.

As for material to be utilized, that most available and

most natural will probably always be the human living skin, but the trials of substitutes for this have been almost countless, with varying but mostly good success.

The skin from a recent cadaver,—of course, with surgical history,—or what is substantially identical,—from a recently amputated limb, has been very successfully used. These must, however, be kept cold until used, a temperature of 32° being the most favorable for preservation of viability.

Dr. Madren of Brooklyn, reports entire success with the skin of infants who died at or immediately after birth.

Frog skin, or in fact the hairless skin of any young animal, can be used, but no reports are very enthusiastic except where reliance has been placed upon the epidermis of living humanity.

Since completing this paper, a case which I had been watching and had given every indication of a striking success, began to shed its grafts to an alarming extent, and with no apparent reason.

Grafts which had remained firmly in place for three or four months, floated off as though they had never tried to stick.

On comparing notes with a New York surgeon who has done a great amount of this work, he states that he has obtained such incomparably better results by grafting from the patient rather than another person, that he invariably takes his grafts from the patient, no matter how little skin is available—going so far as to state that he does so even where the available skin is so limited that it has to be taken twice from the same spot. This seems an extreme view, but is based on very large experience, and may possibly account for the condition I mention, where the grafts were taken from two different relatives, each in apparent perfect health.

Thiersch stated that granulation tissue contains cells of various formation, of which those which we see microscopically to be puffy, flabby, pale and with exces-

sive secretion, were filled with capillaries running vertically; whereas the granulations containing horizontal capillaries are firm and permanent and develop into connective tissue. He taught that the grafts would grow only upon these granulation layers which contain horizontal capillaries, and that all granulation tissue should be curetted down until this layer was reached, the best results being obtained from grafts upon granulations about six weeks old which have been brought into their highest available condition by repeated cauterization and compression.

Grafts on a syphilitic subject will not heal, and if healed they will break down under the slightest provocation. I once exhibited a patient on whom I had obtained a perfect result in a leg ulcer, the whole circumference of the leg, three inches high on the back and seven in front. I exhibited him just in time, for a few months later it all broke down, and I made a diagnosis of syphilis too late to cure his leg or my own pride.

Professor L. Esnardi of Turin, in an article in the *Centralblatt für Chirurgie* of April eighth, announces that he has not found it essential to remove the soft superficial layer of granulation tissue, but that grafts will also "take" upon this. This fact has for some time been accepted in New York where they are getting results in grafting upon almost any substance except bare bone.

In any case, suppuration must not be active, there must be no sloughing, and no hemorrhage. Antiseptics, if any have been used, must have been removed.

Similarly, there must be no antiseptic left on the surface to be denuded. Saline solution, warm, should be used freely, promoting asepsis, removing blood, and facilitating good cutting of the razor. The razor is drawn through the tensioned skin with a sawing motion. An ingenious barber who was preparing some razors for me, when he learned the purpose for which they were to be used, said he would put a rougher edge upon them than he would use for shaving. The result was gratify-

ing and I have since employed that method and that barber.

I have never used a razor specially made for the purpose. These have one surface flat, and one concave, like a microtome knife and have no handle, but a metallic ring to fit on the finger. These are recommended as supplying better grafts.

The teaching and practice long followed the belief that two absolutely essential features of after-treatment were the use of protective tissue, and the continual wetting with saline solution. Good authorities now freely advocate omission of either one of these supposed requirements, and even of both of them. In a recent case of very extensive burns of the chest, neck, and arms, which I had the privilege of observing in Waterbury, brilliant results were obtained with a perfectly dry dressing. The convenience of this method to both attendant and patient makes it appeal to us all. In this case, a protective dressing was used, but anyone wishing to dispense with even that can find all the authority he may wish, for placing a dry gauze dressing right on the grafts and leaving it there, though I should object to the recommendation to use zinc or other salve upon the grafted surface on account of its liability to dam back and retain the secretion. Dry dressings have been regularly employed for some years in both surgical divisions of Mt. Sinai Hospital; in one service with protective strips, in the other, without.

For protective strips, the usual material is sterile gutta percha tissue, freed from antiseptics, though both Cargile membrane and silver foil are logical and efficient. In the now weakened belief that moisture was requisite for the grafts' growth, and in the desire to avoid injury to them, Dr. Mayer used a cage which he placed around the grafted area, built up by gauze rolls and strips of sterile wood, which he kept covered with saline wet gauze without its touching the grafts. In the light of

present methods, this, while ingenious, is entirely unnecessary.

In applying the grafts, it is better, but not essential that they should overlap a trifle. The fact that some, or even many of them, may float off at a later dressing, is not necessarily a proof that they have been futile. Frequently the place where the removed patch had been promptly fills up with a new film, showing that its epithelial elements had adhered and done their work.

Thiersch skin-grafting is an operation which, to adopt an Hibernicism, I always undertake with the knowledge that I will get better results than I expect to. It is one of the most satisfactory and gratifying operations in surgery, and can be successfully performed by any one who knows how to use a razor, and to be surgically clean.

DISCUSSION.

Dr. Rand: Mr. President, I think there is one point which Dr. Crane did not mention. The skin grafts that are usually applied to granulating wounds, or frequently applied to granulating wounds, hold much better and, in fact, frequently will not hold unless you remove the granulating tissues; the granulation should be scraped off.

And then another point. In making the grafts the razor should pass through and cut off the top of the vascular papillae of the skin, and should not pass entirely through the corium. I cannot agree fully with the value of dry dressings over wet dressings.

Dr. Crane: Mr. President, I was allowed twenty minutes for my paper, and I used only seven. The remaining thirteen I should have used, and could, as to the granulations. I affirm that productive connective tissue is not developed from the upper layers. It should be scraped down. I disagree with Dr. Rand that granulations in all cases should be removed. I disagree very strongly, but I do feel that the soft, pulpy granulations on top should be cut down.

CHLOROFORM.

THOMAS G. SLOAN, M.D.,

NOTES MANUSCRIPT.

In 741,031 chloroform anaesthetics, I found a death-rate of 1.5585 and in 551,568 administrations of ether, 1.16151 giving a chloroform death-rate about three times greater than ether. This is about the average ordinarily given.

The anesthetists' committee of the British Medical Association, which published its last report in 1906, gives 19 deaths in 13,393 chloroform administrations. In looking up those deaths in detail it seems to me that only 3 of the 19 were really due to chloroform.

The relative safety of chloroform and ether as usually given is not accurate. Because a patient dies on the table under chloroform, it does not necessarily follow that chloroform kills him, shock from his condition or from the operation is just as liable to be the cause. In estimating ether mortality, the post-operative bronchitis and pneumonia are not taken into account. The experience of the anesthetist is ignored. Poor judgment in choosing the anesthetic is often used. Bad cases are usually given ether. In minor operative cases, a neighbor or relative sometimes gives the chloroform and then if a fatality occurs, chloroform gets the blame.

In the 19 deaths reported by the anesthetists' committee of the British Medical Association, one was caused by the chloroform bottle falling over and saturating the patient's pillow. He died from chloroform of course: three patients had fatty hearts, one had intestinal obstruction, four empyema, one edema of the lungs, one was suffering with urgent dyspnea, three were very exhausted and two deaths were laid to the operation alone. According to my judgment, none of these cases should

be laid to chloroform, but to bad judgment, leaving three deaths in the 13,393 narcoses, really due to chloroform.

In another list of eleven deaths from chloroform, were five fatty hearts, one adherent pericardium, two strangulated hernia, one weak heart, one emphysema, one empyema, one patient was allowed to sit up at once on regaining consciousness, more bad judgment.

On looking up the particulars of chloroform deaths, you will be surprised to see how many are due to carelessness and lack of judgment, and how few really should be charged to chloroform if used rightly, although chloroform does kill, and very quickly at times.

In order to use chloroform with safety, several things must be taken into account.

1.—Always remember that chloroform is dangerous, and that trouble may occur at any minute. Do not be caught napping.

2.—Be ready to act at once if trouble does occur. That means one must have tongue forceps, teeth and jaw forceps at hand.

3.—A large mask covered with flannel is the safest. Too concentrated chloroform is dangerous.

4.—Use a chloroform bottle which lets out the chloroform in drops, not in a stream.

5.—Use chloroform in the proper cases only.

For the conditions where chloroform is dangerous, I would give the following:

1.—Myocardial weakness, fatty degeneration, myocarditis, considerable fatty infiltration, dilatation of the heart, without hypertrophy.

2.—Valvular weakness. Valvular lesions if well compensated, do not contra-indicate chloroform.

3.—Shock, depression and hemorrhage, as in accidents, strangulated hernia, intestinal obstruction.

4.—Operations involving considerable hemorrhage, or considerable intestinal manipulation.

5.—Very long operations.

6.—Joint manipulations, merely as very deep anaesthesia is necessary. Loret reports several chloroform deaths.

7.—Alcoholic and strong muscular men often take chloroform very badly, rigidity, cyanosis, struggling, falling back of tongue are common.

8.—Dental operations—upright—half under.

9.—Tumors pressing on the trachea; goitre, Ludwig's Angina.

10.—Emphysema, expiration is poor.

11.—Cyanosis or dyspnea.

12.—Emphysema or any infusion into the pleural cavity. The half of the chest that is doing the work of both sides is usually underneath, thus working at a double disadvantage.

13.—Chloroform is about twice as dangerous in males as in females.

14.—Lymphatic diathesis, enlarged tonsils, adenoids, general glandular enlargement. Many sudden deaths have occurred in children of this type.

Absolute rules cannot be laid down, often the least objectional anesthetic has to be used and it is often necessary to change from one to the other.

Chloroform is particularly indicated in:

1.—Acute or chronic nephritis. It is held that albuminuria more often occurs in normal kidneys after chloroform than ether, but the reverse is true of diseased kidneys.

2.—Acute respiratory diseases.

3.—Stout patients usually take chloroform well if enough air is allowed.

4.—Children take chloroform better than ether, as the excessive secretion of mucus caused by ether chokes up their small respiratory passages.

5.—Patients with atheromatous arteries and aneu-

rooms. Chloroform does not raise the blood pressure as does ether.

6.—Operations on the brain and thyroid gland—as there is less hemorrhage than under ether.

7.—In cases where complete relaxation cannot be obtained from ether.

8.—In labor.

9.—If chloroform is more desirable in kidney operations, I do not know. I have seen one death from suppression of urine following chloroform and two cases of persistent vomiting for twenty-four hours following nephrostomy under chloroform.

It is very unwise to use either chloroform or ether as a routine anesthetic, every patient should be given the one which seems best suited to his case.

I wish to mention a few things that are often overlooked, and not give complete rules for giving chloroform.

Firstly. The anesthetist has his hands full in giving chloroform and should not pay any attention to anything else.

Chloroform should not be "pushed" under any circumstances, it is always dangerous.

It should be given very slowly at first, with plenty of air. Later if vomiting is impending, let them vomit, rather than push it very much, and if deeper anæsthesia is needed get it gradually.

A large mask such as the Schimmelbusch is best, preferably covered with thin flannel. Gauze holds a great deal of chloroform in its meshes. A patient may be overdosed without your realizing it. Occasionally inhaling from the mask, gives one a good idea of how well saturated it is.

Children almost always cry in taking chloroform, and in so doing inspire very deeply, getting very large amounts of chloroform and when they go under, go very quickly. One has to be very careful as they get deeply

under. As the respirations get stertorous, it is time to let up on the chloroform.

Don't tell a patient taking chloroform to breathe deeply. If he does, apnea or worse is liable to follow.

The higher the temperature, the more chloroform is necessary, and every patient takes it in a different amount, and in a different way. There is no absolute rule as to quantity; enough to get moderate narcosis is the dose for that patient.

More deaths occur from incomplete narcosis and complications, as vomiting, cyanosis, struggling and embarrassed respiration, than from deep narcosis.

A steady, moderately deep narcosis from start to finish is the safest and most satisfactory to the operator.

Rough handling of a patient, particularly when half out of his chloroform, causes much vomiting, and if a patient is returned to bed carefully, there is less probability of vomiting.

The most common sign of danger is respiratory failure, which may occur suddenly or gradually, with or without circulatory failure.

The respirations may be followed by the rise and fall of the chest or abdomen, by the stertor or may be felt by the hand held over the mouth or over the nose.

Wood says, before complete narcosis acute dilatation of the right ventricle is the cause of death; later respiratory failure, but practically respiratory failure is the thing to guard against.

If respiratory failure occurs, the chloroform should be stopped, and if by pulling the tongue forward, respiration does not start, artificial respiration should be started at once, the head being low or the patient being in the Trendelenburg position. The chest should be emptied of chloroform first, and then holding the tongue forward by the forceps, artificial respiration should be done.

With respiratory failure cyanosis of the ears, lips and face occur. The pupil is almost always widely dilated

with no reaction to light. The pulse often remains good but is a secondary matter.

If respiration is shallow but has not ceased, briskly rubbing the lips with a towel, dilating the arms, or a little ether will often correct the condition.

Respiration may be interfered with by the tongue falling back or the cheeks or lips flapping in, particularly in short necked people and those having relaxed muscles and false teeth. This is easily corrected.

The pupil is a very good indication of the depth of narcosis.

It is usually somewhat smaller than under ether, but in nervous subjects, may be dilated throughout.

Ordinarily a dilated pupil means too deep anesthesia; if so there is no reaction to light and there is no corneal reflex, or too light anesthesia, when the pupil does react to light, and the corneal reflex is present. A rapid pulse may be present in either condition.

Ordinarily the pupil should react somewhat to light and should not be very much dilated.

The conjunctival reflex is identical with the corneal and may be followed by testing the conjunctiva of the lid, and so preventing a sore eye afterwards.

As to the after-treatment, absolute rest to the stomach for three or four hours, with as little shifting of the patient as possible, prevents vomiting to a considerable extent, especially, if he has been kept well under throughout the operation.

I believe that the less milk the patient has the first forty-eight hours after the operation, particularly liparotomy, the less discomfort he will have.

CONCLUSION.

Chloroform is really no more dangerous than ether if given by a careful experienced man, if the after results are considered as well as accidents occurring on the table.

The after-effects are less unpleasant, and the most

necessary safe-guards are constant attention, plenty of air, and immediate realization and the treatment of respiratory failure, if it occurs.

Incidentally, if every hospital had an instructor in anæsthetics to teach the green internes, instead of leaving that to the operating room orderly, fewer accidents would occur and unpleasant after-effects would be rarer.

THE USE OF COCAINE IN SURGERY.

R. F. RASH, M.D.,

NEW RIVEN.

It is more than forty years since Gadeke and Percy independently isolated the alkalioid cocaine.

Koller, in 1884, published his discovery of the anesthetic properties of the drug and immediately thereafter interest in, and the use of, cocaine became widespread. In the early history of cocaine anesthesia unnecessarily strong solutions were used; many successful results were obtained, but occasionally more or less serious poisoning occurred. With the passing of the years, however, the principles of its action have been learned, a safe, reliable, and simple technique for its use has been developed, and cocaine has taken an important place as an anesthetic. In many conditions we cannot do without ether and chloroform, but on the other hand cocaine is distinctly the anesthetic of choice in no mean number of cases. Van Mikulicz says: "The question of to day is not which is the safer anesthetic ether or chloroform, but in what cases can local anesthesia be substituted for anesthesia by inhalation."

I propose in this paper to review briefly the history of the development of the use of cocaine in surgery; to discuss the principles involved in the several methods of inducing local anesthesia; and to describe the details of the two more useful methods.

Many advances in the use of cocaine have been made by our own countrymen. As with all discoveries many claims and counterclaims of priority have been made in regard to the various uses of cocaine. These will not be considered here, but the credit given for original work is that now generally allowed.

Corning in particular, in 1885, worked out the principle of nerve "blocking" by the injection of cocaine into and around peripheral sensory nerves. He found that the skin area supplied by a nerve so treated became insensitive to pain and that stimulus or irritation of the nerve distal to the point of injection was completely "blocked." He also, in the same year, secured anesthesia of the lower extremities by lumbar subarachnoid injections of cocaine solutions. It was not until fifteen years later, however, after Bier had announced his results, that spinal cocaineization became popular.

To Crile we are indebted for the practical application of the nerve "blocking" principle for the prevention of "shock" in amputations. One of the important factors in producing the fall of blood-pressure which is so characteristic of "shock" is the reflex vaso-motor paralysis that follows section of large nerve trunks in major amputations. Experiments, and clinical experience, have shown that, even in the so-called "bloodless" operations and under complete general anesthesia, a marked fall in blood-pressure will follow injury to, or section of, sensory nerve trunks. Crile found after cocaineizing a nerve trunk, that the severest injury to the nerve, distal to the point of injection, was without effect on the blood-pressure. By cocaineizing the brachial plexus above the point of section a number of interscapulothoracic amputations have been made without "shock." Similar success has followed from cocaineizing the anterior crural and sciatic nerves in amputations of the thigh.

Halsted and Hall began experiments with cocaine in 1884, immediately after the publication of Koller's discovery, and were probably the first in this country to make extensive practical tests with the drug. They practised nerve "blocking"; secured anesthesia of the skin by infiltration with sterile water and cocaine solutions; and emphasized the importance of injecting the solutions into the skin and not under it.

One of the earliest recorded cases of cocaine anesthesia

is that of the successful removal of a fatty tumor of the forearm at the opening of the Bridgeport Hospital in November, 1884.

The first major amputations under local anesthesia were that of a leg by Crile, in 1897, after exposing and coagulating the anterior crural and sciatic nerves, and that of a hand by Matas in 1898, after coagulating the ulnar, median, and musculo-spiral nerves at the elbow. The radical cure of inguinal hernia was first done under cocaine anesthesia by Cushing in 1897, using a combination of local infiltration of the skin with regional anesthesia by injecting cocaine into the ilio-hypogastric and ilio-inguinal nerves as exposed in the field of operation. Cushing also did the first appendectomy under local anesthesia in 1898.

To Schleich of Berlin, we owe the development of the method of securing local anesthesia by infiltration with dilute solutions of cocaine. He tested solutions of various strengths with the object of determining the weakest solution which would produce anesthesia. He secured practical results with dilutions of 1:5000. The next step was to use sterile water; with this he obtained analgesia but the injection itself was painful. Next he found that solutions of sodium chloride varying in strength from 0.1 per cent. to 2 per cent. produced analgesia and that the injection was not painful. Finally by combining cocaine, even in so weak a dilution as 1:10,000, with salt solution he secured more satisfactory results than with either alone. As Matas says, the two factors essential for the production of local anesthesia of the skin by the infiltration method, are, first the edematization which causes analgesia by pressure, and secondly the direct action of the cocaine on the sensory nerve endings.

The "Schleich solutions," known as No. 1, No. 2 and No. 3 are respectively 1:500, 1:1,000 and 1:10,000 solutions of cocaine with the addition of 0.2 per cent. sodium chloride and 0.02 per cent. of morphine in each.

Formulae.

	No. 1	No. 2	No. 3
Cocaine hydrochlorate,	0.2	0.2	0.01
Morphine hydrochlorate,	0.02	0.02	0.02
Sodium Chlorid,	0.2	0.2	0.2
Aqua distil,	100.0	100.0	100.0

Adrenalin in small amounts has been added to the cocaine solutions in some cases where there was troublesome oozing.

Gant has obtained very successful results with sterile water infiltration in rectal operations and within the year Stevens has reported equally good results in a more general application of the sterile water method. I have in a few cases only, however, used sterile water, comparing it on the same patient with 1-1000 cocaine solution. The injection of the water was painful and the analgesia apparently not as complete as that with cocaine.

There are four general methods of using cocaine for the production of local anesthesia:

1. Segmental anesthesia—spinal cocainization—lumbar sub-arachnoid injection.
2. Regional anesthesia—the injection of cocaine solution into the peripheral sensory nerve trunks supplying the field of operation.
3. Local anesthesia by the infiltration of tissues with weak solutions.
4. Local anesthesia by the topical application of strong solutions to the surface and of value only in the eye and on the mucous membranes.

Anesthesia by the first and second methods is produced by the physiological "blocking" of sensory impulses due to the local action of the cocaine on the nerve fibres at the point of injection. It has been aptly called a "physiological section" of the nerve. (Frank.)

Spinal cocainization is open to several serious objec-

tions; first, so much of the drug is required for the production of successful anesthesia that there is always danger of causing toxic symptoms; secondly, the possibility of injury to important nerves; and thirdly, the risk of infection of the anæsthesia. The first objection is by far the most serious as the others with care may be eliminated practically. Although many brilliant results have been obtained by this method, yet there have been so many cases of poisoning and so many failures that spinal cocainization is at present rather in disfavor.

Regional anesthesia and local infiltration are the methods which have given the most generally successful results. A combination of these two methods will permit of a great number of operative procedures in all parts of the body. Wherever the field of operation is supplied by a few readily accessible nerve-trunks satisfactory anesthesia can be obtained by injecting a few drops of a 1 per cent. cocaine solution into the nerve-sheath. Most writers say to inject the cocaine into the nerve, but injection into the nerve sheath usually suffices and injury to the nerve from traumatism by the needle is thus avoided. The skin over the nerve is rendered insensitive by infiltration with a weak solution, the nerve is then exposed by a suitable incision and the stronger solution is injected into it or preferably under its sheath. Anesthesia is almost immediate although some observers have found it develop only after some minutes. For operations on, or amputations of, the foot and leg both the great sciatic and anterior crural nerves must be cocainized. Many operations, of course, may be done under infiltration anesthesia alone and amputation of fingers and toes is often successfully accomplished after cocainizing the digital nerve branches by hypodermic injection in the region of the nerves as practised by Corning. It is essential that the field of operation be confined to the area supplied by the cocainized nerves.

The study of sensation under cocaine anesthesia and especially the plotting of the areas of anesthesia after

The injection of cocaine into nerve trunks have contributed a great deal to our knowledge of the anatomical distribution of sensory nerves. Certain tissues are found to be absolutely insensitive, in other words contain no sensory nerve endings; for example, fat, muscle, connective tissue and bone and the visceral peritoneum. The sensitive tissues are the nerves themselves and all those tissues which contain sensory nerve endings, as the skin and mucous membranes, the blood-vessels, the peritoneum (?), and the parietal peritoneum (Lennander.)

Infiltration of the skin with dilute solutions of cocaine will produce immediate anesthesia within the edematized area. This applies to practically the whole skin surface of the body. The palms and soles are difficult to infiltrate owing to the dense and inelastic character of the skin in these parts.

It is essential that the solution be injected into the skin itself so as to produce a distinct wheal or area of edema. The edema does not appear in any way to impair healing and per-primam union is the rule. It is useless to inject the solution under the skin. It is perhaps superfluous to say that solutions and syringe should be sterile. Contrary to a very general impression it is nevertheless a fact that cocaine solutions can be boiled and even subjected to sterilization by steam pressure without losing their efficacy.

Injection is commonly made with a piston syringe—any hypodermic syringe that can be boiled will do, although a larger syringe with a long slender needle is more convenient since it requires less frequent filling and insertion. The point of the needle is thrust into the skin and a few drops of the solution are injected. This produces a small white wheal or spot of edema. There should be no pain after this first injection. The needle is pushed along in the skin and a wave of edema is thrown out ahead of it by the injection of the solution as the needle is advanced. In this way the needle is kept constantly in anesthetized tissue. When the full length

of the needle has been inserted, the needle is withdrawn and reinserted in the edge of the insensitive wheel and the injection continued until a sufficient area has been anesthetized.

Matas of New Orleans, has devised a simple apparatus for infiltration in which compressed air does the work of the piston. It consists of a bottle, the cork of which is pierced by an inlet and an outlet tube, and which is securely clamped to the bottle. Each tube has a stop-cock. The bottle is partly filled with the cocaine solution and air is forced in by means of a hand-pump or other device. When sufficient pressure is obtained the inlet is closed and the outlet tube, which extends to the bottom of the bottle, is connected with the needle by a piece of rubber-tubing and the apparatus is ready to use. Matas uses a long slender needle and with his apparatus can infiltrate rapidly large areas. It is simply necessary to open the stop-cock and the compressed air forces the solution into the tissues.

The incision should be kept well within the edematized area; if it is necessary to extend the incision, the infiltration should be correspondingly extended. The subcutaneous fat, muscles and aponeuroses are insensitive to practically so—nerve filaments, however, must be carefully sought for and cocaineized as otherwise their accidental division will cause severe pain. The clamping of blood-vessels is also painful and they like the nerves should be cocaineized proximal to the point of clamping and division. Muscles, if possible, should be separated by blunt dissection in the direction of their fibres; in this way nerve filaments and blood-vessels are unlikely to be avoided. The closure of the skin incision usually gives more discomfort than any other part of the operation. Through and through sutures necessarily pass outside the anesthetized area and are painful, but the subcutaneous suture can often be used without pain. The insensitiveness of the skin after infiltration is al-

ways striking, but there is nearly always a curiously benumbed tactile sense remaining.

Local anesthesia is indicated in all conditions in which the use of a general anesthetic involves serious risk. Diseases of the lungs, heart and kidneys; serious anemias; and general arteriosclerosis frequently render the use of a general anesthetic dangerous. Many trivial operations such as the removal of benign skin tumors, sebaceous cysts, subcutaneous lipomata, and circumcisions can be done under local anesthesia with such complete satisfaction to both patient and operator that it seems unnecessary to expose the patient to the risk and discomfort of a general anesthetic. In empyema a rib can be resected under cocaine, and the pleural cavity opened and drained with hardly more pain than attends an ordinary aspiration. In opening abscesses and infections of the subcutaneous tissues infiltration is of no value, rather it increases the pain by increasing the already excessive tension.

The more notable achievements with the use of cocaine are the avoidance of shock in major amputations by cocainizing nerve trunks; the amputations under regional anesthesia; the radical cure of inguinal hernia as perfected by Cushing; exploratory laparotomies with closure of typhoid perforations, appendectomy, etc.; and thyroidectomy as practised by Kocher; these are all feasible operations in the hands of one accustomed to the use of local anesthesia. Success in all extensive cocaine operations depends largely upon careful bloodless dissection, and the identification and cocainizing of all nerves and blood-vessels met in the field of operation. Morphine in small doses, one-eighth to one-sixth grain, preliminary to operation, and a few whiffs of chloroform during any unavoidably painful manipulations are of great help in difficult cases.

Sargson has recently reported three cases of resection of the ureter with implantation into the bladder under cocaine anesthesia. These operations were excessively

difficult and prolonged—four and one-half to six hours, yet the effect on the patient is described as simply amounting to fatigue similar to the fatigue of a prolonged session in a dentist's chair. All made good recoveries and preferred cocaine to ether.

EXPERIENCES.

- N. Y. Med. Rec., Nov., 1884.
 Corning: N. Y. Med. Jour., Sept. 1882, Oct., 1882.
 N. Y. Med. Rec., Mar., 1885.
 "Local Anesth. in Gen. Med. & Surg.," (N. Y., 1888).
 Schleich: *Schmerzlose Operationen* (1894).
 Kocher: *Abstr. Annals Surg.* 1894.
 Quering: J. H. H. Nat. Arch., 1893.
Annals Surg. 1905, 1909.
 Matas: Phil. Med. Jour., Nov., 1906.
 Ellis: "Problems Relating to Surg. Op.," Phil., 1901.
 Jost: A. M. A., 1902.
 Lemondor: *Mith. u. d. Grenz. d. Med. u. Chir.*, 1907.
 Cozzelli: *Annals Surg.*, 1902.
 Saragoc: *Annals Surg.*, 1911.

DISCUSSION.

Dr. Stevens: Mr. President, I should like to say that in using water I think the great mistake is that the water is used rather cold. It should be used much warmer when using cocaine. I think if he tried warm water, that there would be less pain with it. There may be in some cases a little more pain following water in cocaine, although I have not found it so. The pain which they get afterwards from cocaine is quite marked and in some cases it amounts to a good deal.

Another point, I think you would have to inject a little more slowly with water than you do with cocaine, and that is the only thing that I care to say.

Dr. Bodine, of New York, has operated upon four hundred cases of hernia with cocaine. He uses one-half per cent. in the skin and nerve trunks and one-quarter per cent. in the tissue; total amount used never exceeds half-grain. Results have been brilliant. The President of this Association amputated a thigh under cocaine in 1887, in the New Haven hospital.

Dr. Holmes: Mr. President, surgery has made its important advances, but cocaine in treatment of the nose and throat, has made that department of medicine and surgery far different from what it used to be. The spray should be used in not over one per cent. solution, very carefully, simply to dull and to make the mucous membrane a little anesthetic. That is the limit of its use.

In regard to passing the eustachian catheter in the treatment of middle ear catarrh, it never has succeeded until we have made the proper use of local anesthetics.

Dr. Rand: I have always used my solutions in a water of osaline, warm, and I think observations might be made of the exact temperature at which the solution should be used. But in regard to the question between water and isotonic solutions, it has been shown many times that water is an irritant to the tissues, as it abstracts salts from the cells, so that it seems very logical to use an isotonic solution in all cases.

And in regard to Dr. Crase's comment on the priority, I was very glad to hear that Connecticut leads.

The weak solutions are essential in order to avoid trophical eruptions, and weak solutions approach many, for with absolutely sterile water they are quite harmful. These major operations which are briefly sketched have all been accomplished with a total amount of cocaine of from one-quarter to one-half a grain.

AN EASY, EFFICIENT, AND RATIONAL METHOD
OF REDUCING A RECENT DISLOCATION
OF THE SHOULDER JOINT.

E. CLIFFORD CHURMAN, A.B., M.D.,

NEW LONDON.

You will find in any work on surgery or anatomy the signs, symptoms and adopted methods of reducing a dislocation at the shoulder joint. I will not burden you with them here.

The method which I use and am about to describe may interest and be of value to you and your patient, especially, if you should happen to be without an assistant, as I was when I thought out the method.

The Method.

Stand facing your patient. Gradually raise the dislocated arm to a horizontal position and place it on your shoulder with forearm flexed on your back. Direct the patient to pass his well arm under your arm and grasp the wrist of injured arm with well hand.

Thus the patient completely encircles your body, the injured arm on your shoulder, the well arm under your opposite arm, the well hand grasping the injured wrist.

Now direct patient to sag downward.

The weight of the body drags the head of humerus outward and upward, and places it where you can easily return it to the glenoid cavity with your hands.

The dislocation is so easily and expeditiously reduced that even the surgeon himself is surprised.

With this method, there is the least possible injury to the already injured parts, there is the least possible pain to your patient, there is no need of an assistant, there is no need of an anesthetic; the patient's mind is entirely taken up with assisting you, therefore no inter-

cular resistance; his body furnishes the power by its weight to place the head of the humerus where it can be easily pressed into place, thus doing away with the necessity of pulleys and other mechanical appliances; and the position of the arm is as near the position it was when dislocation took place as possible. This is where it should be before you try to reduce the dislocation.

I have tried nearly all the established methods of reducing dislocations at the shoulder joint, and had always been able to reduce those I came in contact with with more or less trouble and assistance. I was looking for the easiest method.

I had read in a medical journal of a method which to me seemed rational. I have forgotten the name of the surgeon who proposed it, and the medical journal in which it was printed.

It was this:

"Place the hand of injured arm on the edge of a door, push the hand up as far as possible, then with your hands push head of humerus into glenoid cavity."

I tried this method without success, but in the trying was confident it would be successful if we could only apply a little power to the head of humerus, drawing it outward and upward.

At this moment, while the patient's hand was on the edge of the door, the idea came into my mind to place my shoulder under the elevated arm, fix the arm there with the well hand passed under my opposite arm, and get the power required by the weight of the sagging body.

I carried this idea into effect and accomplished the reduction with ease and dispatch. I claim this is a rational method.

If we study the manner in which a majority of these dislocations are produced, we will find that the patient is suddenly thrown forward, generally from some eminence, one hand and arm is extended to save the body from violent contact with ground or floor, the other hand

and arm not being engaged in a similar position. The hand coming in contact with ground or those substans steps, the body continues on its course, going forward, downward and away from the hand. The arm becomes a lever of the first-class.

The great tuberosity of the humerus comes up firm under the acromion process, and acts as a fulcrum, the power is applied at the hand, the weight or resistance to be overcome is the thin capsular ligament and dislocation is the result.

Place your arm against the partition or door in as near this position as possible, apply a little power and note the pressure and pain over the lower and anterior portion of the capsular ligament.

At the time of the contact of the hand with the ground or floor, all the muscles about the shoulder joint are evidently contracted and thus prepared for shock or contact, but, as the great tuberosity gets near the acromion process, the pull of the muscles attached to the tuberosity becomes all, and there is no force to keep the head of the humerus in the glenoid cavity except, the *teres major* and the weak capsular ligament; these are insufficient.

On the other hand, the muscles drawing the arm to the side exert a strong influence to draw the head of the humerus forward from the glenoid cavity, and after the capsule has been ruptured, pull the head of the humerus under the coracoid process.

Three of the cases, which have come under my observation, were produced thus.—The patient was riding in a light wagon. The front axle and wheels became detached from body, allowing the forward end of the wagon to drop suddenly, throwing the patient forward to the ground. One hand was holding the reins, the opposite hand and arm extended to save the body.

One patient fell from a low limb of a tree, one hand holding a saw, the opposite hand and arm extended to save the body.

Still another old patient, with one arm useless, being bound to the side with cancer, placed the opposite hand on the back of a high back chair and attempted to sit on a vessel placed on the floor. This last position you will see is similar to the others, only that the forearm is flexed and power is applied at the flexed elbow.

Now if we place the patient in the position described above, namely, the dislocated arm over our shoulder and fixed there with the opposite hand, and direct the patient to sag downward, we find that the position of the arm is as near the position it was when dislocation took place as it is possible for it to be, and that the weight of the sagging body overcomes the resistance of the pectoral muscles, relaxes the strain on the muscles attached to the great tuberosity, if they have not been torn away in dislocation, and draws the head of the humerus outward and upward, placing it where a little manipulation with your hands will return it to its glenoid cavity.

This method may have been used and described many times, but I have not been able to find it mentioned in any literature at my disposal, therefore, it is original with me, and I am positive it will interest and be of value to many who are not familiar with its application.

DISCUSSION.

Dr. J. E. Root: Gentlemen: Personally I feel very much indebted to Dr. Chipman for his very forceful paper, and especially his illustration. All of us, at least those who graduated fifteen or twenty years ago, will remember the well laid down rules in our text books and by professors, the surgeon taking off his shoe and putting his foot in the axilla and using that as a lever, and if you think it, gentlemen, it is apparent that the arm thus brought out ruptures many of the ligaments which ordinarily hold the arm in place. That is, you have to carry it out over the abrupt angle of the socket. The secret of course in the reduction of all dislocations, particularly of the shoulder, is to replace it in the same way it

went out. Now we are not always certain of that. A man does not always know how it happened. But certain it is that subluxation is one of the most important cases we find. And if we get the history of our cases, we will find that most of them occurred in some motion, ever the head backwards; hence the assumption is that the bone went out in that way, and it has been my experience to reduce all dislocations by gradually raising the arm upward, in the position which in most cases, it went into, and then gradually pulling out. This has been my practice for a number of years. I don't know of anything that could be more desired and apparently more easily accomplished, in my judgment, without the use of an anæsthetic, than what has been given us by Dr. Chipman. I feel personally very much indebted to him, and I assure him that the next patient I have with a dislocation of the shoulder, I shall attempt that method of reduction before giving him an anæsthetic.

The President: The chair desires to say that in all dislocations the obstacle to reduction, if we will study it out, is one that I see some of the gentlemen recognize as the union portion of the capsular ligament. That is the main obstacle to reduction. The question of the relaxation of the muscles is secondary. Whenever we attempt to reduce the dislocation, we must relax the union portion, and in those cases of luxation the glenoid cavity, the position which Dr. Chipman has demonstrated to us accomplishes this purpose, and a little lift may be of importance,—if we can get the patient to allow himself to sag down, then he gets free of the muscular action, and the position is exactly the one we want. It is the same that Dr. Root described, which we all do if we can, to pull it directly upwards, and then having it in that position, with one hand above the shoulder and the other in the axilla, the reduction takes place at once. I must say I am greatly interested in Dr. Chipman's

exposition and description of this method. We owe a great deal to him, and I have no doubt that a great many of the men who do not have an opportunity to treat the patient with an anesthetic, will find an advantage in using his method.

TREATMENT IN TUBERCULOUS JOINT DISEASE.

JOSEPH E. ROOT, B.S., M.D.,

HARTFORD.

Mr. President and gentlemen of the Connecticut State Medical Society:

The large number of papers presented to you to-day upon the general subject of Tuberculosis reflects the increasing interest of the profession in this very important malady; and especially the orthopedic surgeon, since it is now a well-established fact that nearly four-fifths of all joint and bone affections are tuberculous, the diseases of the spine, hip and knee being, in the order given, the most conspicuous examples.

The mechanical treatment of these joints marked an important era in their successful management, but the tendency has lately been, in our zeal to secure the proper splint, brace or apparatus, valuable and indispensable as they are,—to forget that we were dealing with a pure case of tuberculosis, as much as though the disease were seated in the lungs. As a proof of this look through any or all of our text books on general or on orthopedic surgery and see how little, if any, space is devoted to the general and constitutional treatment of the disease under consideration. And, even the transactions of the American Orthopedic Association contain but one paper on the subject.

As emphasized by the previous exordium, it is now thoroughly recognized and established that the salvation of tuberculous patients depends upon the early and constant recognition of, and abiding in, the "Trinity" of Powers—"Fresh-air, Sunshine and Food."

The fact that we are handicapped in the appropriation of the above powers by having our locomotion and can

riage interfered with should not deter us in our efforts to produce them, and in our selection of means or apparatus to obtain the required rest, protection and freedom from weight-bearing, (which are to a greater or lesser degree the essentials of the mechanical part of the treatment) we must keep constantly in mind the necessity of the patient's getting out of doors. If you have unfortunately seen the case late, and the lesion of the spine, hip or knee is giving much rise in temperature you should limit—or for a time prohibit—bodily exercise, this being replaced by massage. Keep the patient out of doors on a banana-cart arrangement by day and at night he may sleep either in a tent or on a porch, protected from the wind but not from the air.

We are indebted to Drs. Gallows and MacKenzie for the introduction (in 1901) of the "Tent Treatment" into the Toronto Orthopedic Hospital for dealing with Pott's Disease, Hip-Joint and other tuberculous joint diseases with very marked success.

As illustrating the great benefits to be derived from the out of door treatment in these cases I will cite, briefly, the case of Mildred E., aged six years, who had been under the care of Doctors Goldthwaite and Lovett, of Boston, for beginning Pott's Disease. The patient, residing in a nearby town, was placed in my care about three years ago. I found the child greatly emaciated, a small nodule at the junction of the lumbar and sacral spine, and a large psoas abscess in the right pelvis. I put on a plaster jacket and had the girl placed on a so-called "banana cart" and kept out of doors all day; sleeping at night either in a shed or protected piazza. She began to gain in weight under this open-air treatment, and the most interesting part of the case was the complete absorption of the large abscess. I saw the child, recently, and she is apparently in good health, attends school daily and shows no return of the former symptoms.

Even though great and lasting results can be obtained from out of door treatment we must not lose sight of

the fact that mechanical appliances are necessary, especially in the early stages, to avoid bone disintegration from body weight, and inflammation caused by motion.

The best means of reducing pressure and producing fixation, whether by plaster, iron, wood, leather, canvas or any combination of these, must be a matter left to the ingenuity and skill of the individual surgeon.

Passing on, now, from the treatment of tuberculosis of the spine to that of the hip-joint which is the next most commonly affected, and as illustrative of the perfect results obtained by out-of-door treatment and simple fixation I will briefly state the four following cases representing the different types of the disease.

CASE 1. A. M. Aged ten years, placed under my care in August 1901 with a history of acute symptoms of contractures, pain and disability, covering only a period of two months. I found him much emaciated and an immense fluctuating abscess on the left hip. Its size was such that aspiration was deemed impractical and a small incision, sufficient to open the cavity was made and from which nearly three pints of pus were removed. At the expiration of two weeks six ounces more were removed; followed as usual by firm strapping. Plaster cast was applied, patient kept in bed for five weeks, cast removed, and replaced by another, the patient turned out of doors with crutches, the opposite shoe being raised. The boy grew fat, went lame for a time, attended school the following spring; since which time I have seen but little of the case until four weeks ago when, to my great surprise, I found apparently, a perfectly healthy boy in every respect; no limping, no shortening and perfect motion at the hip-joint; the only remaining evidence of the disease being, the cicatrix of the big abscess and the circumference of the affected thigh which is one inch less than the other and a corresponding atrophy of the gluteal muscles of the left hip.

The salient points in the treatment of this severe suppurative case were rest in bed, reduction of the contrac-

tuberc. emptying of abscess, simple fixation of limb in good position by plaster spica, followed by out-of-door treatment with continuous fixation of hip but free use of the limb below the knee!—result, perfect recovery, and no symptoms for three years to date.

Case 2. M. P. Aged four and one-half years, presented well-marked symptoms of coxalgia three years ago and was taken to Prof. Lorenz of Austria on his initial visit to this country. He confirmed the diagnosis and recommended the short spica plaster cast extending from the waist to the knee and that the child be allowed to walk freely on the affected side. The case was then placed in my hands to carry out this method of treatment. The patient was kept in the open air as much as possible and began to improve rapidly in general condition and on the removal of the first spica (at the end of two months) the pain and spasm of the muscles had subsided and the motion had increased. The plaster casts were removed and re-applied at intervals of about three months from that time to the first of last October (1904) since which time the upper limb has received massage and electricity.

The child is now the picture of health, there is no shortening or adduction of the limb and perfect flexion at the hip up to a right angle with the body; the thigh of the affected limb, however, measuring one inch less in circumference than the other, which atrophy of the muscle accounts for a slight dragging of that limb when the child is very tired. Otherwise the gait is normal.

This method of treatment, which is simply fixation of the hip-joint, is the one which Professor Lorenz has pursued with such marked success in Austria during the last fifteen years. This fixation of the hip-joint by means of the plaster spica extending only to the knee allows the free use of the limb below thereby maintaining the development and function of the limb and affords all necessary protection to the joint, excepting, perhaps in some cases where for a given period of time they are

sensitive to weight-bearing; but in any case this period is short at best.

This method is bound to rapidly gain prominence because of the great ease with which it can be applied and the minimum discomfort to the child and the maximum benefits ultimately derived, or in other words the staying of the tubercular process and the securing of a useful limb.

CASE 3. H. McD., of Middletown, aged two and one-half years. This patient was seen by Dr. Gilmer of New York, whose diagnosis was coxitis and was sent to me by the now late Dr. Doremus in February, 1882. I found upon examination, a well marked case with abscess which had been aspirated sometime previous.

I covered a long splint; kept the child in a recumbent position for two months at which time the acute symptoms had subsided. I then applied a short splint allowing the boy to use the limb freely, and be about in the open air. The abscess gradually disappeared without further interference. The child gained rapidly in flesh and strength. The short splint were re-applied once in three months for the next two years, at the expiration of which time we had a complete recovery, with perfect motion and no shoeing whatever of the affected limb. Up to this time (three years) he has shown no signs of return of symptoms.

I wish to emphasize, right here, that none of the cases which I am citing in this paper are recent recoveries, none having shown any return of their malady for three years, and in no case have I used extension, and all have walked freely without the aid of crutches or other apparatus after the acute stage.

The fourth case which I place before you is that of G., aged four and one-half years. I was called to see this child seven months ago, by Dr. O'Leary, and found a most classical case; and one of a numerous class, from whom you receive a history of trouble with the knee and hip two or three months before you first see them—sup-



SPICA BOX.

Portable Spica Box for applying plaster bandage to hip and thigh. 5x11x18 in. sliding adjustable bottom.

proved to be rheumatism, and which apparently got well; but on the return of the symptoms you are called only to find a jumping Coxitis. It was so here, flexion, adduction, contracture well marked with no voluntary motion at the hip. I forcibly extended the knee and hip as much as possible without an anæsthetic and applied a short spica down to the knee, put him into bed for a few days and then sent him up into the mountains for the summer. I did not see him again for three and a half months and to my happy surprise when I removed the cast I found a fine, easy, perfectly flexible joint; no shortening and the slight hitch in walking due to a muscular atrophy of one inch in circumference on the affected thigh.

I exhibit here, for the easy and simple application of these plaster spicas, extending from the waist to the knee or heel, a portable "Spica Box" which, though very simple is different from anything I have seen. It is a plain box 12x18 inches and 6 inches high with an adjustable, sliding frame, on the under side, upon the end of which is a 6 inch iron standard with a trowel-like attachment on its top, upon which the patient's sternum is placed—the shoulders resting upon the top of the box; the affected limb being held by an assistant; the plaster bandages thereby being applied with great ease and efficiency.

This "Spica Box" I present here for your inspection.

I have devoted a good deal of time to the treatment of the hip, but it is because it is easily one of the most frequent and important of the tubercular joint affections and seems to be treated differently in different countries. American surgeons and to some extent the Germans all treat it by extension and fixation—the English use fixation alone and no extension.

My own experience, for the last four or five years has led me unhesitatingly to simple fixation as the rule, of course I am speaking of the non-operative cases, especially those seen early though my instruction and experience

had previously been to the contrary. But, when I obtained perfect results, (as illustrated by the oldest of my cases) by the simple out-of-door fixation treatment, I began to drop extension—though up to the time of the Lorent case I had carried the gypsum splint to and including the foot, but since then simply to the knee and thus far have seen no ill effects or relapses from the patient's being allowed the perfect use of the limb below the knee. When we consider the very great comfort and advantage to the patient in getting about and saving the perfect function of the limb, even though we should occasionally have a return of the acute symptoms it is no more than must be expected in any other form of treatment in some instances.

One thing which forces itself upon all careful observers and for obvious reasons, is the fact that the retardation of the growth and function of the limb is in direct ratio to the length of time during which it was rendered functionless; hence, for the immediate and future welfare of that limb, as an aid to locomotion we must make the period of enforced rest, the very shortest that is compatible with the integrity of the tubercular joint, and especially extension. For, when the hip is cured by that method of treatment we have at the same time stretched the ligaments of the knee to such an extent as to make it weak and "wobbly" and utterly unable to sustain the weight of the body, with muscular atrophy—brittleness of bone and shortening of limb, which is the usual picture presented by the average case following the extension, functionless method of treatment.

I am aware that good recoveries have been made by any and all methods of treatment; but, I will ask those of you possessed especially of the "Judicial Temperament" whether, in the race for life against the pursuit of this devastating enemy, you would "Pick to win"—the child weighted down on the lame leg with a long, heavy steel bar from the sole of the foot to the heavy iron girdle about the waist, and the other foot built up

on wood to balance; or—the child with a short apica, allowing ‘good knee-action’ and the toes of the feet to claw the ground?

I have occupied too much time, perhaps, in speaking on the non-operative cases; but, if cases can only be seen early, few operations will be necessary, and, desirable as it is to remove all necrotic tissues on general principles, yet we should hesitate in opening up the affected joint until your powers of resistance are sufficient to have walled off the bad from the good, and in this tuberculous bone tissue it is not easy to find the really safe line. My rule is, to operate as soon as I find that under the improved hygienic and climatic surroundings the case is still unable to handle the products of diseases, but you must bear in mind the fact that you are subjecting your patient to dangers more formidable than he has already encountered. This brings me to the treatment of abscesses.

At the outset, I cannot pass by the personal observation that there is no sight which is so disquieting to my nervous system as that which is too frequently seen, of the poor, innocent, frigid abscess, which has been fiercely assaulted with a knife as though it were the *causa belli* of all the patient's disturbance and then, worse than all, the hole stuffed full of rags. The *staphylococcus pyogenes* has already entered and you know only too well what it will do; especially as compared with the innocuous and peaceful conduct of the easy *micrococcus* just ousted from his ‘quiet and happy home.’

My experience and observation, teach me as follows: Never to open a tubercular abscess unless by its size or location it is involving important surrounding structures or interfering with your apparatus or, has already become infected. Aspirate if possible—if not, open small under the most careful surgical precautions, squeeze the part perfectly dry, carefully sew up the opening and then strap very firmly.

The treatment of other tubercular joints must be car-

died on in the same general way, especially the knee which is next in frequency to the hip and spine. My experience here leads me in favor of simple fixation, rather than extension in most cases. My conclusions are as follows:

Firstly: Patients suffering from joint disease should be treated in the same general, well-recognized manner as those suffering from tuberculosis of the lungs, namely out-of-door air, sunshine and good food.

Secondly: Fixation of affected joint, relief from weight bearing if pressure gives pain; recumbent position in open air if much rise of temperature.

Thirdly: That retardation of growth, muscular atrophy, relaxed ligaments and bone degeneration are in direct proportion to the length of time which the parts are rendered partially or wholly functionless.

Fourthly: To obtain earliest possible functional use of associated joints compatible with the integrity of the affected joint.

Fifthly: Especially in hip-joint cases, fixation and proceision during the short period of sensitiveness to weight bearing; and finally simple fixation at the hip with a short splint giving perfect freedom of action below the knee during the whole course of the disease.

THE FAUCIAL TONSIL.

FREDERIC S. CROSSFIELD, M.D.,

BALTIMORE.

Listening to a most able and instructive paper, read before the Hartford Medical Society at a recent meeting by Prof. Deaver of Philadelphia, upon "Abdominal Pain," one was almost persuaded into the belief that outside of the abdominal cavity, there is nothing in the human anatomy worthy of consideration.

And yet, we have in the faucial tonsils, glands capable of producing more trouble in proportion to their size, than any other part of the body; their location being most favorable for the reception and accumulation of every variety of micro-organism, from the innocent to the most virulent forms.

The faucial tonsil consists of an almond-shaped mass of lymphoid tissue, situated between the two pillars of the fauces. Owing to the great variation in size of the gland, in different individuals, and to the fact that pathological changes often commence soon after birth, no definite measurements can be given.

The antero-posterior boundaries are always limited by the two pillars of the fauces; the upper border by the convergence of the two faucial pillars, while the lower border may be said to be unlimited, sometimes extending beyond the base of the tongue, and even sending prolongations as far as the lateral walls of the laryngeal cavity.

The most logical view of the various structures is that which regards them as localized enlargements in the so-called "tonsillar ring" of Waldeyer, which means that irregular circular continuity of lymphoid tissue, which starts in the naso-pharynx, and stretches on each side to the edges of the Eustachian tubes, thence to the posterior surface of the soft palate, the space between the faucial pillars, (forming here the faucial tonsils) and anal-

ly unites in the fourth, or lingual tonsil, which lies on the floor of the tongue, between the circumvallate papillae, and the epiglottis. Similar deposits are found in the ventricle of the larynx and in the nasal mucosa.

Under normal conditions, the tonsils do not extend beyond the plane of the faucial pillars; free on their inner side, they are in relation on their outer, with the amygdaloglossus and the styloglossus muscles, and a few fibres of the posterior pillar.

According to Cobb, outside of these few small fibres, a hard fibrous wall about one millimetre in thickness, is found, from which, septa run into the tonsil forming its capsular wall.

Continuing from within outwards, the superior pharyngeal constrictor and the bucco-pharyngeal fascia, are successively met.

This fascia forms the inner wall of the pharyngo-maxillary space.

In the posterior part of the latter, are the large vessels, and corresponding to its anterior part are the tonsils.

These relations are of importance as bearing on the position of the carotid arteries, which are a definite distance outward from the vertical plane of the tonsils, as well as behind them; the distance from the lateral periphery of the tonsil, being one and a half centimeters for the internal carotid, and two centimeters for the external.

The supra-tonsillar fossa is a space lying at the upper part of the tonsil, close to the anterior palatine arch, and was first described by His in 1885.

This fossa is undoubtedly the point of entry of much of the contagion gaining access to the system through the tonsillar structures.

From the free border of the palatoglossus muscle, there arises a fold of mucosa, stretching backward toward the tonsil, which it partially covers. This is called the *plica triangularis*.

Its apex blends with the faucial arch and becomes lost in the velum palati; the base disappears in the structures at the base of the tongue, while the free edge continues over the tonsil, which may, and often does, adhere to it. At the top of the tonsil and immediately behind the plica, a curved probe may be passed into a cavity which extends for a variable distance behind the soft palate.

This is the supra-tonsillar fossa, or palatal recess already spoken of, comprising the remains of the lower part of the original second visceral cleft. The connective tissue of the reticulum of the tonsil, and the follicles lying therein, are in structure exactly like the ordinary lymph-nodes. In the reticulum lymph-spaces may be seen between the follicles or on their periphery, these not being shut off, as in the ordinary node.

These lymph-spaces are continuous with the afferent lymph-vessels which lie in the peri-tonsillar connective tissue.

The tonsils are at the period of greatest activity about the twenty-fifth year; from that time, they generally atrophy, and assume different shapes, appearing as irregular hard masses, apparently without any distinct division. This change may be the result of the inflammations of preceding years, or to senile degeneration.

You will remember that in the segmentation of the vitellus, two layers of cells appear, which become the internal and external blastodermic membranes. From the inner surface of these two, a third or middle blastodermic membrane is developed.

The buccal cavity on the one hand, and the lower portion of the rectum on the other, are separate productions from the middle and external layers of the blastodermic membrane.

According to Retterer, the development of the tonsil in man, consists in an involution of the epiblast into the hypoblast; the hypoblast, coming up from the intestinal tract, and the epiblast, pushing in through the oral cavity, this being the meeting-point of two forms of embryonic tissue.

From this primary invagination, secondary invaginations occur into the surrounding tissue. As development progresses, the hypoblastic layer gradually grows in between these involutions of the epiblast, separating them from one another. The basement membrane of the epiblastic layer, quite early during the process, is lost, or becomes so fused with the hypoblastic cells, as to be indistinguishable.

As development proceeds, the hypoblastic elements penetrate not only between the epiblastic involutions, separating them widely from each other, but now also penetrate between the individual cells. Gradually, certain portions of this separating hypoblastic tissue, become more condensed, giving rise to the lobular structure of the tonsil, this condensation taking place in the peripheral parts of the hypoblastic tissue; that is, in the parts most widely separated from the epithelial cell, which is surrounded.

As the enveloping tissue becomes more and more consolidated, the epithelial cells become more and more compressed, to such an extent that they undergo retrograde metamorphosis, or fatty degeneration, and finally disappear, leaving empty spaces.

This occurs especially about the periphery of the organ, and gives rise to the lacunae, or minute spaces which are seen under microscopic examination; in a transverse section of the tonsil, the larger ones being visible to the naked eye.

It will be seen then, that except in fetal life, or very early in infancy, the mass of the tonsil is made up of hypoblastic tissue. This consists of cells, some round, others elongated or stellate, which, as seen by the microscope, constitute simply lymphatic tissue.

The development of the tonsil practically consists in the grouping together of these lymphatic cells into masses, constituting blind follicles or lymph nodules, these nodules being separated from each other by layers of connective tissue, the origin of the connective

tissue being the hypoblastic layer, the lymph-cells of which have undergone transformation into connective tissue cells.

The whole mass of the tonsil then, is made up of lymph-tissue of this character, surrounding a somewhat varying number, (from eight to twelve) of deep, pouch-like cavities or pockets, the crypts of the tonsil, formed by the original invaginations, already described as commencing in fetal life. The whole mass is covered by mucous membrane, which not only covers the face of the tonsil presenting in the fauces, but also extends down into the crypts of the organ.

The mucous membrane is of the ordinary type, covered with epithelium, which is squamous on the surface, and becomes cylindrical in its deeper layers.

We thus find the tonsil made up of a mass of lymphoid tissue, in which the covering mucous membrane is arranged in such a way, that these invaginations or crypts, assume somewhat the form of a muciparous or secreting gland, with this difference, however, that the epithelium, which lines the tonsillar crypts, is not of the same character as that which we find lining ordinary muciparous glands; hence, the secreting capacity of these crypts is exceedingly limited probably pouring out no more than enough to keep the surface moistened and lubricated.

The arterial supply is derived from the *dorsalis linguae*, the *ascending palatine* and *tonsillar*, the *ascending pharyngeal* and the *descending palatine* arteries.

The tonsillar artery, entering the tonsil at about the junction of its middle and lower thirds, is of importance in hypertrophy of the tonsil, when it assumes considerable size, and is the source of hemorrhage after tonsillotomy, which is sometimes troublesome. (in adults, not young children, because hypertrophy is found only in older children, or adults.)

The nerve supply is from Meckel's ganglion and from the *glossopharyngeal*. The lymphatics of the tonsil are numerous, and empty into the lymphatic glands near the

angle of the lower jaw, and into the superior deep cervical lymphatic glands.

It would seem that with our knowledge of the anatomy and development of the tonsils, the physiological function would suggest itself. That is not the case, however. It is hard to believe that the Creator gave us these peculiar glandular bodies without some definite purpose, but that purpose has been guarded so carefully, that we have never found it out. It was at one time supposed that the tonsil simply secreted a lubricating fluid, to moisten and facilitate the passage of food through the oesophagus; and later that the lymphatic structure of the tonsil, possessed the function of reproducing white blood-corpuscles.

The most plausible theory, it seems to me, is that the tonsil has an absorbent function, that it in some way tends to destroy pathogenic germs, taken in by the food and inspired air.

Whatever the function may be, it can only subserve a purpose in early life, because, soon after that period, the gland takes on structural changes.

No matter at what period the tonsils are removed, there is apparently no functional loss. Cases have been reported of entire absence of both tonsils.

I have dwelt somewhat at length upon the structural development of the tonsils, in order that a more perfect understanding may be had of the diseases affecting them.

With our knowledge of the anatomy and growth of the tonsil, and the lymphatic connections, it is easy to understand how, under certain favorable conditions, we may have systemic infection through absorption, and that the tonsillar structure, when subjected to superficial ulceration, as it often is even in the ordinary inflammations of the tonsil, may form a channel for systemic infection.

Staphylococcus, *streptococcus*, *pneumococcus*, *diplococcus*, and even *diphtheria bacilli*, anyone or all of these micro-organisms may be found within the crypts of the

tonsils, dormant for a time, maybe, but liable at any time to set up a most violent inflammation and systemic infection. We see examples of this every day. While there may be systemic infection, there is not always a co-existent inflammation of the tonsils themselves.

I have often seen mild toxic symptoms relieved by proper treatment of the tonsil, and enlarged and painful cervical glands disappear, upon removal of the offending tonsil on the same side.

I think we all believe in the germ theory in a causative relation to diseases of the tonsil, but it has been demonstrated that there is no one germ that is peculiar to any special form of acute tonsillar disease.

Only a few days ago, a nurse consulted me about her throat. She was in attendance upon a severe case of Pneumonia. About the fourth day, she complained of some pain on swallowing; the left tonsil was somewhat enlarged and tender the muscles of the neck on the same side were swollen, and numerous glands were prominent and tender. There was some fever and general feeling of malaise.

These symptoms lasted four or five days, and under appropriate treatment, gradually subsided.

It is more than probable that these germs gain access to the lymphatic vessels, and carry infection to the deep cervical chain of lymphatic glands. This is doubtless one of the most common sources of infection in tuberculosis, and some of the acute infectious diseases.

In classifying the diseases of the tonsil, it is convenient to divide them into acute and chronic.

Of the acute forms, we have: Acute Superficial Tonsillitis, Acute Parenchymatous Tonsillitis, Rheumatic or Gouty Tonsillitis, Membranous Tonsillitis, and true Diphtheria.

The chronic forms are: Hypertrophy of the tonsil, Caseous Tonsillitis, Mycosis, Calcareous formations and Tumors.

Acute Superficial Tonsillitis, is an acute inflammation

of the tonsil, not generally confined to the tonsil, but more often associated with the fauces or Pharyngitis. This disease occurs more frequently among children, as in early life, is not severe, and is easily recognized.

The superficial inflammation may go a step further, involving the whole gland, and it is then known as Parenchymatous Tonsillitis.

So far as diagnosis is concerned, the only difference between the two diseases is in degree. The parenchymatous form is sometimes mistaken for Quinsy, but the disease subsides without the formation of an abscess.

Acute Cryptic Tonsillitis, or Follicular Tonsillitis, as it is often called, is the form of disease known as "ulcerated sore-throat" by the laity. It is an inflammation extending into the lacunae or crypts, and is characterized by the filling of these spaces by the inflammatory exudate, as whitish plugs.

It is sometimes diagnosed as Diphtheria. In the cryptic form, the exudate appears as points over the surface of the tonsil, and can be easily removed; while in Diphtheria, the exudate occurs as a membrane much more adherent, and if removed, we find underneath a bleeding surface. The microscope will remove all doubt.

Quite often we meet with cases of Tonsillitis of greater or less severity, occurring at all ages, but more commonly after childhood, with a history, generally of previous attacks.

They occur often without warning and persist, even though usual remedies, both local and internal, have been used faithfully.

On questioning these patients, it will be found that they are more or less subject to Rheumatism or other uric acid manifestations, and urinary examination will often show a large excess of uric acid. These cases come under the head of Rheumatic, or Gouty Tonsillitis.

Dr. Robert C. Myles thinks that the cervical lymph nodes can be read with the fingers, and may be considered as an index to pathologic conditions in the facial

tonsils; that Rheumatism, septic infection, tuberculosis and the like, may be traced to primary involvement of the tonsil, the microbes invading the tonsils through the crypts.

The most common of all acute diseases of the tonsil, and the one producing the most constitutional disturbance and greatest discomfort, is Peritonsillar or Circumtonsillar Abscess, or Quinsy as it is commonly called.

It is an acute inflammation of the tonsillar or peritonsillar structure. Twenty-five per cent. of all tonsillar diseases are of this type. As a result of the rapid inflammatory changes which take place in this form of Tonsillitis, the cells die from pressure, and pus is produced, which may collect in the substance of the gland, or in the loose cellular tissue upon which the tonsil rests. The disease may occur at any age, but it is more commonly observed between the ages of fifteen and forty, and it may recur many times in the same individual. It is a most severe acute inflammation, the tonsil (one or both) becoming rapidly enlarged, with high fever and great suffering, especially during the act of swallowing; the pain extending into the ear of the affected side.

There is marked tenderness externally, near the angle of the jaw and considerable external swelling.

The symptoms enumerated are pretty sure evidence of tonsillar or peritonsillar abscess. Now and then a membrane is found upon one or both tonsils, possibly extending from the pillars of the fauces or pharynx, which in every way resembles the membrane of Diphtheria, but no diphtheria bacilli are found. The microscope removes all anxiety.

Of the chronic diseases of the tonsil, Hypertrophy is the most common. It is seen at all ages, and is considered an evidence of a strumous diathesis, and may be hereditary. It occurs more often in those who have suffered repeatedly from the different forms of Tonsillitis. In young children, you will find it generally associated with the enlarged pharyngeal tonsil, or adenoids.

There are two varieties, hard and soft. In the hard variety, there is an increase in the gland structure, but more especially in the connective tissue—stroma, producing the firm, hard, lobulated tonsil. In the soft tonsil, the structural change is confined mostly to the gland element.

All enlarged tonsils are not pathological, this being true particularly in children, where we often find these glands normally enlarged, a fact always to be remembered.

Not infrequently, a form of Tonsillitis is found called *caseous*. It is caused by the crypts enlarging and forming pockets.

Particles of food, secretions and probably micro-organisms accumulate within the pockets, producing more or less inflammation of the tonsils and surrounding tissues.

Careful examination by drawing the tonsil out with forceps, and the use of a probe and of pressure, will dislodge a foul smelling mass in the form of a plug.

The disease which is called *Mycosis*, is a fungus development on the surface of the tonsil, generally about the opening of the crypts. It is not always confined to the tonsil; the fauces and lingual tonsil may be similarly affected.

It consists of a deposit of spores of the *Leptothrix buccalis*.

It is a most obstinate condition and liable to recur after thorough removal. It should not be confounded with *Cryptic Tonsillitis*. The fungus is removed with difficulty in *Mycosis*, while in *Cryptic Tonsillitis*, the secretion can be pressed out and easily wiped away.

Concretions composed of calcareous material, phosphate and carbonate of lime, epithelial debris are occasionally found, by accident generally, within a distended crypt. They are often carried for a number of years producing no disturbance to speak of, and can easily be removed.

It is not necessary to speak in this connection, of Syphilis and Tuberculosis, because they are not confined to the tonsil. The tonsil may be, and often is, involved when the disease is located in the pharynx. The same is true of Diphtheria.

Fortunately, tumors of the tonsil are rare. Of the benign growths, Lymphomata, Fibromata, Papillomata and Angiomata, are the varieties met with. They have no important clinical significance.

Primary Cancer of the tonsil is also rare. Lenox Brown was able to gather from hospital statistics, but thirty-two cases in ten years. Morell MacKenzie saw but twenty cases in a practice of twenty years, and reported, out of 8,289 deaths in the Paris registers, only three ascribed to Cancer of the tonsils.

They are classified as Sarcomata and Epitheliomata.

The Sarcomata are further divided into round cell, spindle cell, lympho-sarcomata and angio-sarcomata; and the Epitheliomata into squamous, alveolar and columnar.

The round cell sarcoma is by far the most common variety of all malignant growths of the tonsil. It occurs more frequently between the ages of fifteen and forty, while the epithelioma is rarely seen under forty.

About the only disease Cancer of the tonsil is at all liable to be mistaken for, is Syphilis. Pain, though present in Syphilis, is not a constant or prominent symptom, as a rule.

Pain is constant in Cancer, from the first, increasing in severity until swallowing is quite impossible. There is but slight glandular enlargement in Syphilis, while Cancer is always manifested in the tonsil as a new growth, which sometimes attains a large size.

There is infiltration and induration of the neighboring glands, which become as painful as the original growth.

Hemorrhage is rare in Syphilis, but frequent and severe in Cancer. There is little or no loss of flesh in

Syphilis, while emaciation commences early in Cancer, and continues to the end.

Syphilis responds quickly under the administration of the Iodides. The Iodides have no effect upon Cancer.

Cancer progresses rapidly in spite of any remedy, medical or surgical. Finally, we have the microscope as a means by which all reasonable doubt can be removed.

For lack of time, I shall not attempt to discuss the subject of treatment of the diseases of the tonsil.

I shall, however, call your attention briefly, to the consideration of surgical interference in these diseases.

When Shall We Operate?

It seems to be the rule with some operators, unfortunately for the patients, to remove everything that projects beyond the surface. An immediate operation on the tonsil is almost never necessary. This gives us an opportunity to consider carefully, whether the necessity exists in reality, or in the mind of an over-zealous operator.

First, ascertain if the patient be a bleeder. If so, my advice is to leave the tonsil absolutely alone, or you will court trouble of a very serious nature.

The same may be said of Syphilis, for where the tonsil is involved in syphilitic disease, Tonsillotomy is certainly contra-indicated. An acutely inflamed tonsil should never be amputated.

The question is often asked, would you open a peritonsillar abscess? If upon digital examination, the presence of pus is detected, I would not hesitate to liberate it.

The point of incision, according to St. Clare Thompson, and the one suiting the greatest number of cases is, immediately external to the intersection of a transverse line across the soft palate, just above the base of the uvula, with a vertical line drawn to meet the one just located, from the lower part of the anterior pillar on the affected side.

The point above named, corresponds to the supra-tonsillar fossa already described.

The mistake is sometimes made, of opening the tonsil in parenchymatous Tonsillitis. This form of Tonsillitis rarely goes on to the formation of an abscess, and therefore surgical interference is not indicated.

When the supra-tonsillar fossa becomes troublesome through the accumulation of food, etc., it should be obliterated.

This is best accomplished by blunt scissors or forceps, and the electric cautery.

Calcareous formations, when found, should be removed, and the cavity destroyed.

All enlarged tonsils are not pathological, as I have already stated; and to remove everyone because it appears somewhat enlarged, I believe to be a mistake.

In a case of true hypertrophy, if the tonsil is large; if it affects the voice; if it gives rise to any irritation, or if it is subject to repeated inflammatory attacks, it should be removed, taking the precautions I have already mentioned.

The tonsil giving quite as much trouble as the hypertrophied variety, is the soft, flabby tonsil, with crypts wide open, hidden behind the pillars of the fauces.

This tonsil is subject to sudden and repeated attacks of inflammation, accumulates more micro-organisms and particles of food than any other, and is more likely to make trouble. Therefore, under these circumstances, it should be removed. With forceps, it can be lifted from its hiding and dissected out.

Benign Tumors of the tonsil are usually small, and not often troublesome, therefore their removal is not absolutely necessary. One should be governed by the circumstances in each individual case.

Cancer of the tonsil, however, is a very different proposition. The prognosis is extremely grave. The glands in the neck are early infiltrated, and therefore it is practically impossible to remove all traces of the disease, and recurrence is almost certain.

We may say then, that surgery offers us no hope for its complete eradication, even in the early stages.

A partial removal should never be undertaken. If an operation seems desirable, it should be done externally, and all indurated glands thoroughly removed.

I have seen but one case of primary Sarcoma of the tonsil, in my own practice of twenty-seven years.

The patient was of German parentage, thirty-seven years old, and a native of Hartford; family history negative. She had had several attacks of Tonsillitis, always on the left side; the last attack about a year before I saw her.

The attending physician made an incision, but more blood than pus came away at this time.

About a week afterward, however, the tonsil broke and discharged a large amount of pus. The size of the tonsil did not materially diminish. In the course of a month, it began slowly to increase in size.

At the time I first saw the case, the tonsil was about the size of an English walnut; dark, almost purplish in color, and very hard, with superficial ulceration upon the surface, which bled easily and freely. The muscles of the neck on the affected side were stiff and hard, and there were many prominent glands which were tender and painful. Pain was an ever constant and most distressing symptom.

Dr. Bunce examined two specimens, and pronounced it round-cell Sarcoma. The Tumor, just before death, completely filled the pharynx; the external swelling was the size of a small hen's egg.

The family would not consent to an operation. Death was due to exhaustion. No nourishment to speak of was taken for several weeks before death.

If through the presentation of this subject, you are better able to single out and diagnose these different conditions, with greater accuracy, then I shall feel that this time has been well employed.

SOME REMARKS ON ADENOID HYPERTROPHY OCCURRING IN CHILDREN.

E. TERRY SMITH, M.D.,

ASTORIA, ORE.

The frequency with which this condition is met and the importance of its early diagnosis and treatment, are my principal reasons for bringing it to your attention. As long as there remains in the medical profession a single man who fails to recognize the danger of neglecting this condition, so long will it be necessary to point out the need of prompt and proper treatment.

The pharynx tonsil resembles the lymph nodes. Manfredi has shown that they protect in three ways,—first, by filtration; second, by weakening the micro-organisms that reach them; and third, by the whole organism obtaining a greater or less degree of immunity while the first two processes are in operation. So, perhaps a small amount of healthy, lymphoid tissue in the naso-pharynx can amount not large enough to produce symptoms may be beneficial, but when the adenoid is enlarged in the slightest degree, it undoubtedly affords a portal for the entrance of many diseases. Acute inflammation of the pharynx tonsil is often a serious condition, producing high fever, great prostration, slow convalescence, and often leaves one or more enlarged cervical glands. Certainly the world is deep in the debt of gratitude it owes to Wilhelm Meyer of Copenhagen, the first person to thoroughly describe adenoids and their treatment. Since his first paper on the subject, which appeared more than thirty years ago, although volumes have been written, hardly a point has been found on which he did not touch in his memorable thesis. In an interesting article of his, published more recently, he shows from statistics, from portraits of historical personages, and from a study of

antique busts preserved in the Vatican Museum, that hypertrophy of the pharyngeal tonsil is universal at the present day, and has existed in past ages. In referring to the symptoms, he speaks of the habitually open mouth, the narrow nostrils caused by the inactivity of the wings of the nose, and a dull look about the eyes,—the same appearance that characterizes all the Fra Angelico saints. He also speaks of the lack of resonance of the voice and the faulty enunciation of the sounds "M" and "N."

When once the significance of the above symptoms was pointed out and the fact that their diagnosis could be positively assured by digital exploration, the great number of these cases all over the globe began to be appreciated. One of the first methods employed to find out their frequency was to have a number of children pronounce words contain "M" and "N." The inability to pronounce these sounds distinctly was regarded as indicating the presence of adenoids. Of course this is not absolutely reliable, but it is an indication.

The other methods used to collect statistics were by digital exploration and by using the rhinoscopic mirror. Of sixty Greenland children examined digitally, only 26.7 per cent. were found to be free from adenoids. Among the North American Indians adenoids were found to be very common. They were also found in South America, China, Siam and Sumatra. Dr. Meyer concludes, therefore, that they are found in at least three continents,—Asia, Europe and America,—and are more frequent in warm climates.

Among the noted people pointed out as having suffered from enlarged adenoids, he first shows a portrait of Antonio Canova, the sculptor, showing the open mouth, narrow, compressed nostrils, and a veiled appearance of the eyes. It is also known that Canova was deaf. At a still more remote time, Charles V. is shown as having a typical adenoid face. In his case the adenoids were evidently eventually absorbed, as his later portraits are

less typical in their appearance. It is also known that he was a sufferer from asthma. Francis II, of France, who died in 1566, is also reported as being a mouth-breather, speaking with a nasal intonation, and he had a chronic otorrhoea.

Another proof of the early existence of adenoids is that the artists of the Renaissance have often depicted a typical and unmistakable adenoid face in their paintings and sculptures. It is not probable that this would have happened if they had not been common types. The remains of antiquity show a number of heads with the typical adenoid expression. Thus, we must come to the conclusion that adenoids must have existed during the greater part of the historical era.

Dr. Meyer died in 1895 and it is refreshing to know that a large amount of money was subscribed by surgeons scattered all over the world, as well as by many grateful patients, to erect a monument in Copenhagen to his memory.

Children having adenoids and allowed to go on with out having them removed always fall below the measure of health and mental development that they would otherwise have attained; and if the adenoids are specially large, their whole future is sure to be blighted by a dull mind and stunted body. Who was it said, "It is infancy that has made man what he is?" Truer words were never spoken. The formative period of life should be respected and all avoidable obstacles should be removed.

With regard to the cause of adenoids: Repeated colds in the head are probably the most frequent cause; they are frequently found after measles, scarlet fever, whooping cough, etc. They are more frequently found between the ages of three and five, but some claim to have found them at birth and they have been seen in people over forty-five. Their diagnosis is usually not difficult. The facial expression often indicates their presence, the mouth being wide open, the nose thin, nos-

trils narrow, and on each side of the nostrils the depression is deeper than normal. In these cases the parents usually tell us that the child breathes through the mouth, snores at night, and is subject to night terrors. The children are often deaf and have histories of repeated earache, colds in the head are a continuous performance, the voice lacks resonance, and the child, as I have said before, pronounces its "M's" like "B's" and its "N's" like "D's."

Let us now consider the treatment of adenoids. It may be either medical or surgical, or the two may, with much greater success, be happily combined. The surgical procedures are, of course, the most efficient and consist in the radical removal of the growths. In cases, where for some good and sufficient reason, it is decided that the operation ought not to be done, I have found general hygienic treatment to be of more benefit than anything else, and I advise all those cases that react properly after it, to take a cold bath in the morning. Give them a number of breathing exercises so as to develop their chests. Tell them to sleep with their windows open. Force their feeding, and as medication give them iodine in some form, as it certainly has a beneficial effect on lymphoid tissue. Adrenalin may be most locally.

In considering the surgical treatment of adenoids, I think all are united in the belief that the operation should be performed like all other surgical procedures,—under strict aseptic precautions, and by this I mean not only that the instruments, hands, etc., should be surgically clean, but that we should make sure that the child's throat and respiratory tract is not in a state of acute inflammation. Not long ago I had an appointment to operate on a case. The child was rather delicate, and a couple of days before the time appointed for the operation, the doctor stopped in to make sure that the child would be in good condition at the appointed time. The child seemed in good spirits and did not con-

plain of a sore-throat, but the doctor, as a precautionary measure, took a culture from one of the tonsils that look a little inflamed. This was examined and found to contain the bacillus of diphtheria. About two months ago, after having everything ready for an operation, we arrived at the house early one morning and were informed that the child had not passed a good night, had coughed a good deal and had slept very little. The temperature was taken and found to be normal, but upon examination of the chest the doctor detected some bronchitis. It is unnecessary to say that the operation was postponed. It may interest you to know that it was a beginning bronchitis and the child was quite sick for ten days. I trust that the above cases illustrate my point, that the operation not being an emergency measure, but being done to improve a chronic condition, we should try by all the means at our command to minimize the dangers that are coincident. I do not mean that we should insist that the throat and nose should be absolutely free from mucus, as with large adenoids we rarely find it so, but the child should be free from all acute diseases.

After we have decided that the child is in condition for the operation, the next important thing to do is to decide whether to use an anesthetic or not, and if you decide to use one, which it shall be.

As Dr. Delavan says, two grand principles must be kept in view when operating upon adenoids,—thoroughness and humanity. In my opinion both of these principles are best carried out by using an anesthetic, and it has always been my practice to invariably use a general anesthetic when removing these growths from very young children. The choice of the anesthetic is another important point and about this there is a great difference of opinion. A great many men prefer ethylchloride. This is best administered on a piece of gauze held tightly over the mouth and from half an ounce to an ounce is poured on at once. It is rapid in its action and is said to be safe. Chloroform is still preferred by many,

but since Dr. Hinkel wrote his paper in 1895 and made the following affirmations, it has been discarded by many. The affirmations are:—

First: Statistics show an exceptionally high mortality from chloroform anesthesia in the operation for the removal of lymphoid hypertrophies of the pharynx.

Second: The observations of Vienna pathologists show that sufferers from "adenoids" frequently belong to an abnormal constitutional type that has been found peculiarly susceptible to chloroform narcosis.

Third: In view of the statistical and pathological data presented, the general use of chloroform in the operation for hypertrophied tonsils or nasopharyngeal adenoids is inadmissible.

In an article presented before the American Laryngological Association last June by Dr. Francis R. Packard, he gives a list of twenty-six deaths from the anæsthetic in nose and throat operations. Of these, twenty-four were caused by chloroform, one from chloroform and a. c. v. mixture, and one from ether.

Laughing-gas is used by some, but it is not practical with young children. Personally, in the last hundred and fifty cases that I have done, I have used ether to the exclusion of all other anæsthetics. The anæsthetic should not be carried to complete narcotization. Personally, I prefer to operate at the end of the primary stage, as then the laryngeal reflexes are not abolished, and there is not so much danger of blood or other foreign matter finding its way into the larynx. In young children I prefer what is known as the "clock method" of giving the ether, as by using this method the child becomes relaxed in from forty-five seconds to three minutes, and after the operation is over, as a rule he does not seem to have unpleasant memories of the anæsthetic.

With regard to the position of the child during the operation, there is a great difference of opinion. Some prefer to have the child sitting up, others lying down

with face downward. Personally, I prefer the child in the recumbent position, with the shoulders slightly raised, the head inclining backward, so that the blood will flow away from the larynx.

In operating I first use the Goltstein curette; generally the larger portion of the growth is brought out with the instrument, and after this I allow the patient to expect the blood and portions of the growth that have been cut off. I then pass my finger into the nasopharynx and if there are any remaining pieces, I either remove them with the curette or a pair of forceps. If some additional tissue still remains, I have the patient given a little more ether and complete the operation. The object to be attained in this operation, is not to see how quickly it can be done, but how thoroughly. The patient almost always swallows blood during the performance of the operation. This quickly becomes black in the stomach. If, as is usually the case, the child vomits, the parents are usually alarmed, but by predicting the occurrence, it relieves them from that anxiety. It is also well to tell the family that the child will continue to snore for two or three nights, as it does not show marked improvement until the blood clots have cleared away. If the voice does not become clear after the operation, you should inspect the nose for other obstructions to nasal respiration, and if not found it may be due to paralysis of the soft palate. Alternate gargling with hot and cold water will usually remedy this. The after treatment of this condition is important. Considerable hemorrhage usually accompanies the removal of the growth, and this combined with the shock of the operation, and the fact that the child before was probably in an anemic condition, makes it important to see that the child is kept in bed for at least two or three days and for a week is not allowed to do very much. The danger to be feared at the time of the operation is, of course, hemorrhage, and on account of this we should always try to find out before operating if the child has a tendency to bleed. Un-

less the child has this personal idiosyncrasy, the danger of serious hemorrhage is slight.

Among complications occurring after adenoid operations may be mentioned post-pharyngeal abscesses, acute inflammation of the middle ears, and purulent inflammation of the sphenoidal sinuses. Ordinarily after the operation I have the child watched carefully for the first week, being sure that the bowels are regular, the diet not too heavy, and that the child is kept quiet. Locally, I do not use anything, unless some odor is noticed from the nasal discharge.

The persistence of mouth-breathing with its accompanying bad effects after adenoids have been removed is generally the result of the acquired habit, and we should at once by teaching the child to breathe properly, overcome this difficulty. We should not only teach the children to breathe through the nose, but we should also teach them abdominal breathing, as in this way their lung capacity will be greatly increased, and the increase greatly improve their general condition.

DISCUSSION.

Dr. Gilt: I think that the lymphoid structures of the nasal pharynx are much abused tissues. I think they are often condemned and guillotined upon insufficient evidence, often their only offense being that they are large enough to be apparent. They should be removed only when they give rise to definite symptoms, such as obstruction to respiration or hearing, or are the seat of septic absorption. Speaking of absorption, Dr. Crossfield asserts that they are often the seat of tubercular conditions, but at the present time that is a mooted question. Koplik and Aufrecht assert that the infection in tuberculosis occurs through the tonsils in all cases and at all ages, but I cannot agree with this proposition. I had the privilege of assisting Professor Wynter Wingrave of London, in the histological examination of some two hundred and fifty cases of adenoids and tonsils. In four

teen of these we found tubercular conditions. We found small and giant cell-tissue in different stages of caseation, with tubercle bacilli scattered among the cells. In no case did we find primary tuberculosis of the tonsils. In the fourteen cases there were tubercular conditions existing in other parts of the system; in the ear, the lungs or the larynx. The mere presence of a few tubercle bacilli upon tissues exposed to air currents is not sufficient evidence upon which to base a diagnosis of tuberculosis.

As to the operation for the removal of adenoids, Dr. Smith has described it very nicely, and I quite agree with him in the use of anesthetics. In Vienna they rarely use anesthetics; in London they always do. The operation is often incompletely done, and it has been my privilege to demonstrate the presence of adenoids yet remaining after such skillful operators as Hajek. And in my work in the clinics it has often been my own experience. It is often amusing to watch surgeons in the clinics in their efforts to remove these structures with a Gottstein curette. They labor vigorously denuding the base of the atlas and axis of their protective mucous membrane, not reaching the vault of the pharynx, where the adenoid tissues are dependent. The reason of their failure is due to the shape of the ordinary Gottstein curette, the handle being so straight that when you depress, it comes in contact with the teeth of the lower jaw and you are unable to reach the vault. The handle should have an additional curve at an obtuse angle near where it is grasped. It is safe to say that in three out of five cases operated upon, remaining adenoid tissue can be demonstrated.

As to the choice of anesthetics, I quite agree with Dr. Smith that chloroform should not be used. There were but two fatalities in some twenty thousand operations for the removal of adenoids and tonsils in the London Nose & Throat Hospital, and in each of these chloroform was the anesthetic used. At the present time its

use in this hospital has been abandoned. Personally I prefer *seamform*. It requires about fifty to sixty seconds for the production of anesthesia and lasts about two minutes. It requires but a very small amount, from five to ten cubic centimeters being sufficient for one administration. I have seen it administered in sixteen hundred cases with no untoward effects, and its use in my hands has been very gratifying. In adults I apply cocaine crystals to the palate, use a palate retractor and a rhinoscopic mirror, and remove the adenoid with forceps,—inspecting the field as I progress. I never use a general anesthetic in adults.

There were some points in Dr. Crossfield's paper which I would like to discuss. The anatomical description was an excellent presentation. In reference to peri-tonsillar abscesses, I understood him to say that he would not open them until there was evidence of pus,—but I do not hesitate to say that most cases can be aborted on the fourth day by incising the anterior pillar near the palatal vault.

I should like to discuss the question of mouth-breathing because that has been given a great deal of attention, and exaggerated results are often attributed to it, but time will not permit.

Dr. Holmes of New Britain: The operation of removing adenoids without an anesthetic, in any but a very small child is a very uncertain operation, on account of the constriction of the naso-pharynx and the muscular contraction caused by the operation. In very young children it may be done, but it should not be attempted by a civilized surgeon, except under very urgent conditions. I have found before operation, after making a careful diagnosis, with the finger in the naso-pharynx and also making an ocular examination, that sometimes these growths can be seen through the nasal fossae, if these fossae are well dilated. If in removal the growth is grasped by a suitable forceps and the central part is loosened with a rocking motion, then swept

with Goetzstein's curette, and then sweeping Rosenmüller's fossae with the Chappell curette, the tissues obstructing the eustachian tubes are removed from acting as impediments of hearing. I find then, that the operation is safe and sure of giving relief.

In regard to anesthetics, I have found chloroform of some use, but ether is preferable.

Dr. Crossfield: In regard to infection of the system with tubercular bacillus through the tonsil, there would seem to be a question about it. We often find the lymphatic glands in the neck which on opening demonstrate absolutely the presence of tubercular disease, and, as I said in my paper, the tonsil itself is not necessarily diseased, although we find the different germs abundant within. In regard to opening the tonsil in peri-tonsillar abscess, it has been my experience that where the tonsils have been opened before there was any formation of pus, or any evidence of formation of pus, that one opening was not sufficient, and I have seen within a few months a case where the tonsil was opened twice, and finally, without relieving the disease, a spontaneous rupture occurred nearly half an inch from either one of the two openings. It has been my practice to wait until I had found some evidence of puss, and then make my incision.

THE DIAGNOSIS AND TREATMENT OF PRONATED FEET.

ALEX HAMILTON WILLIAMS, M.D.,

HARTFORD.

I. Diagnosis.

The condition of Pronated Feet has long been familiar to orthopedic surgeons, but by the majority of our profession it is still too frequently unrecognized. Yet I believe that the diagnosis and treatment of this condition, save perhaps in especially obstinate cases, should be the duty of the family physician. It is a very common affection. Comparatively few of the cases find their way into the hands of specialists, and the rest are going about untreated. To treat them properly requires some experience and careful attention to detail, but any physician can learn to do it if he is willing to take sufficient pains. My purpose in this paper is to show how simple is the recognition of this condition, and to suggest methods of treating it.

We now use the term pronated feet in preference to that of flat feet because it is a better description of the deformity. A foot may be badly pronated and still have a good arch. A pronated foot is one of which the ankle rolls in. In the normal foot the weight of the body is supported on a tripod, composed of the heel and the heads of the first and fifth metatarsals. The rest of the foot is an arch. On the outer side this arch is low, and when the ankle rolls out it rests on the ground and so holds up the weight. On the inner side the arch is high. When the ankle rolls in there is no extra support for it and it is held up only by the muscles and ligaments. Keeping the ankle in this position puts a strain on these muscles and ligaments. In a weak foot these yield and

the ankle sinks. When this position becomes habitual we have the condition known as a pronated foot: the ankle is rolled in and the body-weight falls to the inner side of the median line of the foot.

When this constant strain begins to tell on the muscles and ligaments the symptoms of pain and stiffness appear. Also this rolling in of the ankle prevents the knee from locking, and this again affects the motions of the hip. Therefore the first pain may not be in the foot or ankle, but in the leg or back. At first this position can be voluntarily corrected, but after a time the foot grows stiff and the position is fixed. Flatfoot occurs when the ligaments relax, allowing the bones of the arch to press down against each other. This happens especially when pointed shoes have pushed the great toe outward and thus deprived the arch of its chief accessory support. However you cannot measure the amount of pronation by the amount of flattening of the arch. It is the permanent rolling in of the ankle which constitutes the deformity.

About one-tenth of the people whom you see on the street show that their feet are more or less pronated. Only one foot may be affected, but in time the other generally follows suit.

The chief cause of this condition is the wearing of shoes. The best of shoes impair somewhat our muscular action, and almost all shoes cramp and distort our feet. The feet of normal children are not flat, although there is a pad of fat under the arch which makes them look so. This distortion and muscular weakness produced by improper shoes may be increased by other causes, such as a gain in weight or rapid growth, convalescence from illness, general debility, or an occupation requiring much standing. Rickets and trauma may also produce the deformity.

It is necessary, however, to distinguish between the anatomical condition of pronated feet and the symptoms of pronated feet. A very large number of the people

who have pronated feet do not suffer from them. They are like the man with an irritable appendix: they are in danger, but they do not have the disease. Like a valvular heart-lesion the condition may exist for a long time without causing symptoms; pain and stiffness only come on when compensation is broken, when the burden of the body weight becomes too great or the muscles grow too weak.

The symptoms vary. Pain may come on gradually or suddenly. There may be a series of attacks with periods of comfort between. Generally there is first a sensation of weakness, and the feet tire easily. Then follow dull aches in the calf, knee, hip, or lumbar region. The feet lose their spring and shoes are uncomfortable. There may be sharp pains in the instep. The ankles swell, the whole foot becomes tender and painful, and the pain is increased by dampness. This type of case is always thought to be rheumatism by the patient, and is often so called by his physician. I am always suspicious of a diagnosis of rheumatism of the feet. There may be circulatory troubles—cold, clammy feet, cramps in the legs at night. A very common symptom is morning stiffness after the night's rest which wears off during the day. When muscular spasm sets in, walking is often extremely painful, especially on rough surfaces. Rarely the patient is unable to walk at all, or is even confined to bed. No one of these symptoms is necessarily present in any given case, but any or all of them may be.

The diagnosis is made from the symptoms and from inspection of the feet. Pronated feet are often mistaken for joint rheumatism, muscular rheumatism, lumbago, sciatica or for sprain of the ankle or knee. The question to be determined is not one of flatfootedness, but whether or not the ankle rolls in.

When a person is standing erect and evenly on both feet, a plumb line dropped from the centre of the patella falls in the median line of the normal foot. If the foot

is promoted, the plumb line falls to the inner side of the median line.

This is the one definite diagnostic sign, always present. The shoe of the promoted foot will be found to have the inner corner of the heel slightly blunted. A wearing down of other parts of the heel is not significant. In a severe case the whole shoe may be trodden over to the inside.

Associated with this rolling in of the ankle there may be swelling, impaired circulation, tender spots on the feet, marked deformity of the great toe, and a flattening of the arch. Flattening of the arch is tested for by having the patient walk on linoleum or a bare floor with a moistened, or better, a powdered sole. In an advanced case the walk is characteristic, the toes are turned far out and the gait is shuffling and awkward. Increased flexibility of the joint is a pretty sure sign that the foot is causing trouble, and a marked rigidity is an almost positive one.

But it must always be remembered that the presence of a promoted foot does not necessarily mean that the patient is suffering from it. In the milder cases the correct diagnosis is often not easy. It is best made by elimination. The patient is having a certain chain of symptoms for which he seeks relief. These symptoms may be due to promoted feet, and his own feet are promoted. If after careful examination there is no other cause apparent for his symptoms, it is reasonable to believe that the feet are at fault. In cases of doubt it may be necessary to try the effect of treating the feet before deciding.

The prognosis of treated cases is excellent. Most of them get entire relief from their symptoms. My friend, Dr. Blodgett, in analyzing one thousand cases treated at the Carney Hospital in Boston, found that only 14 per cent. were not helped by foot-phases. In private practice I think that the statistics are even better. Of my own cases, omitting those too recent to judge of, I have

had in the last year out of twenty-seven which I have been able to follow but one whose symptoms were not so greatly improved as to be practically well, less than 4 per cent.

What becomes of the untreated foot? Some of them recover muscular tone, after a longer or shorter period of discomfort. But the majority do not, and the patients remain partially disabled. They use their feet as little as possible, and are not fit for military service or for the more active occupations of civil life.

II. Treatment.

The treatment of pronated feet must be intelligent if it is to be effective. And it is not intelligent treatment to send the patient to a store to buy a pair of springs. It is true that the majority of cases are best treated by giving them a support which will hold up the arch and throw the weight more on the outer side of the foot. But just as it is not intelligent treatment to send a case of myopia to be fitted by the spectacle-maker, so it is not intelligent treatment to send a case of pronated feet to the nearest shoe-shop or drug-store, or even to the brace-maker. These stores all keep foot supports, just as they keep electric belts and Peruna; they keep these things to sell, not to benefit the customer. And it is not fair to our patients to leave the selection of proper supports in their untrained hands. The proper method of holding up the foot is a problem in mechanical surgery, it differs for each individual case, and it requires a trained mind to solve it. Even if these ready-made plates were of a proper shape, which they are not, they would not fit, because no two pairs of feet are alike. And the plate must fit the foot; a bad plate will increase the deformity.

Moreover all cases do not need a support. I believe it is a great mistake to give a plate to a mild case, to a person of light weight, if he has little pain and is sufficiently intelligent and persevering to follow out a thorough course of treatment. It is better to do without a

support, if you can, for once put on it generally becomes a permanent habit.

What we want to do in these mild cases is to throw the weight to the outer side, and to strengthen the foot. We throw the weight over by raising the shoe on the inner sole and by teaching the patient how to walk. The first thing is to see that he wears a proper shoe. The shoe must be almost straight on the inner border, must be as broad in front as the foot itself, and must have a low, straight heel. It is hard to get this, especially in women's shoes, but there is no use in trying to improve the foot without good shoes. We raise the shoe by putting a 1-4 to a 1-2 inch lift on the inner border of the heel; or perhaps better by both raising and building out the inner border. This throws the weight to the outer side of the foot as the patient comes forward in walking. He must learn to walk as the American Indian and other primitive people walk, carrying the foot straight to the front, not toeing out, and so holding his foot that the outer edge strikes first. It is not hard to acquire the habit. He must also use his toes and if the great toe is bent out, it must be straightened. A piece of felt or cotton worn between it and the second toe does this, or a better way is to use a toepost. The toepost is a piece of tin bent in this fashion. An insole of leather or cardboard is made for the shoe. This is slit where the outer side of the great toe should be, and the toepost, inserted into this slit, holds the toe straight. Wearing this, of course, necessitates slitting the stocking and sewing up a separate compartment for the toe, like the thumb of a mitten. A toepost is also effective when you are using a steel plate which does not hold the foot altogether well.

Having thus thrown the weight somewhat out, we want to so strengthen the muscles that they will keep it there. If the muscular debility is general, the patient needs general tonics. The best tonic treatment for the feet is showering with hot and cold water alternately.

This should be done for ten minutes night and morning. Massage and electricity are good but not so necessary. The muscles must be strengthened by systematic foot exercises, such as rising on tip-toe and rocking out the ankle.

This treatment, carefully carried out, will give excellent results in cases of simple relaxed feet with a moderate degree of pronation. This condition is common in children, both when they first begin to walk and during the years of rapid growth. And although they cannot be expected to do the exercises, merely raising the heels has a surprisingly good result. Most of them do not feel any effects from the pronation while they are light and active, but later with advancing years, increased weight, and labor, they are apt to suffer. I think it is certainly the duty of the family physician to watch the children's feet, and when they pronate, to use prophylactic measures. Simply keeping the inside of the heels raised until these children get the habit of throwing their weight out, and until the period of rapid growth is past, would prevent a large number of our pronated feet.

Unfortunately we do not often see cases in these earlier stages; usually they do not come for treatment until the deformity has so increased that some support is necessary. But even these feet, by the help of exercises and showerings, may so improve that in time they can leave off their plates. I think that this is a matter of which many of us have been negligent. We should keep these cases more under observation after fitting plates to them, and see if after a few months or so some of them cannot begin to do without the plates again, at first for a few hours a day and finally altogether.

In deciding for or against a support we must consider the person's occupation. Policemen, motormen, nurses, clerks, and all those who use their feet constantly, cannot wait long to get them into condition. They need the immediate relief which a plate gives. If, however, a foot is rigid and cannot be corrected, the rigidity must

be overcome before a plate can be applied. This is accomplished by gradually drawing the foot into a proper position by a series of strappings with surgeon's plaster, carrying strips from the outer edge of the foot, underneath, and well up the inner side of the leg. Occasionally absolute rest in bed is also necessary. If the foot is too rigid to be corrected in this way, the adhesions must be broken up under ether and held for a time in a cast. It is entirely useless to apply a plate until the rigidity has been overcome.

To make a support we need a model of the foot. Plaster of Paris is the best material. The plaster is sprinkled into a dish of warm water and stirred until it is of the consistency of thick cream. It is then poured into any flat receptacle; I use a cake-tin, but a pasteboard box does as well. The patient sits in a chair, and his foot is put into the pan in a partly corrected position, with heel and ball resting lightly on the bottom. The plaster does not cover the foot, but must come well up on the instep. When it sets, the foot is taken out, and the impression is greased and filled with fresh plaster cream. Next day the mold is broken off, leaving a cast of the foot. The area which the plate is to cover is now to be chiselled out and shaved smooth, and the concavity of the arch so much increased that a plate fitted to it will hold the foot in a correct position. The amount of cutting necessary for this can only be learned by experience, and it varies with the amount of pronation and rigidity. Cutting out too much makes the plate painful. Care must also be taken that the corners are level so that the plate will not rock. The shape of the plate is now to be marked, and then any mechanic can make a plate to fit the cast; it does not require a skilled brace-maker. If the cutting has not been quite correct, the plate can be altered later after trying it. I have here a cast which shows how the cutting is done.

There are many varieties of plates, and each orthopedist has his own. In general there are three styles. The

first, of which these ready-made plates are typical, has simply a curve which pushes the arch up into place. It is radically wrong in principle because a plate should also hold the whole foot in position. Otherwise the foot slips off against the outer side of the shoe, and as that gives, the plate becomes useless. These plates have all been used by patients and discarded for that reason. The second type, the Whitman plate, has a flange on the outside to hold the foot, and rolls up high on the inside, against the bones of the arch. This makes it painful to the wearer if he does not walk properly with his weight thrown out. It is a difficult plate to fit, and, I think, an unnecessarily severe treatment. The third type supports the whole foot in a corrected position, without depending on the wearer's muscles. I use myself the Goldthwaite modification of this type. These two plates show the form of it; one is uncured, the other finished, ready for use. It is a rectangular plate, going from just in front of the weight-bearing part of the heel to the metatarsal heads. It has an outside flange at the heel, and rises under the arch, with a small flange to keep the scaphoid from crowding down. It is made of 18 gauge steel, spring tempered except the flanges which may need to be rebent. It is covered with leather on both surfaces, the upper leather forming an insole to the shoe. It is less likely to rust if galvanized or copper-plated. The patient generally needs a slightly broader boot with it.

This plate can be modified to suit exceptional conditions. Mild cases can sometimes do without the leather and flanges. I find that after a couple of weeks' wear, the arch can always be raised a quarter-inch more than the patient could stand at first.

At best the fitting of a plate is a laborious business, and it may need to be rebent several times before it is satisfactory. But at the same time when you can get a half-crippled person back to a state in which he can walk again with pleasure, the result justifies the trouble.

I want to urge again that the family physician include pronated feet among the disorders of the body which he recognizes and which he treats. It is not a fatal disease, but it does cause much suffering and loss of usefulness.

OBITUARIES.

*Jehovah's truest eye—quit he slept,
And smother'd the candlestick and
Was livelier for him— and these were—
Died by the line of God!*

RIAL STRICKLAND, M.D., ENFIELD.

THOMAS D. CROFTERS, M.D.,

LECTURER.

Few of us have ever had an opportunity of knowing personally the country Doctor who was so prominent the first part of the last century. Now and then types of this class may still be seen in the interior districts of the Eastern and Middle States, but it is evident that they are rapidly disappearing.

The old-time Doctor of that day was a bustling, resolute, independent man who was a surgeon, an obstetrician, a neurologist, a chemist, a dentist, a veterinarian and an undertaker on occasions; one who wrote wills, said prayers, conducted funeral services, and did many other things unknown to the modern physician. At this time we have a very imperfect conception of this class of men, and their personal influence in the community in which they lived.

Rial Strickland was one of this class, and in the sixty-four years of his professional career he filled this role completely, and officiated in his community in every possible way, that a physician of long ago was not unfrequently called on for help. Born in Stafford Springs, Ct., in 1814, his early boyhood was spent on the farm, and after the usual common school studies, he entered Wilbraham Academy. From there he went to a similar institution in Pittsfield, Mass., completing his academic studies. In 1834 he began the study of medicine in a Doctor's office, making pills, compounding different concoctions, doing errands, going with the Doctor from place to place, and assisting in operations, taking care of his office, and very likely helping him with the care of his horse. In 1837 he entered the Albany Medical College, from which he graduated in 1839. Returning

to Connecticut he began to practice in Columbus and then removed to Long Meadow, Mass., where he remained over twenty years. Later he moved to Enfield, and for over sixty-four years his practice was confined to a radius of a few miles in the Connecticut Valley.

In 1854 he was sent to the Massachusetts Legislature, as a representative from his town, and in 1881, he was elected State Senator to the Connecticut Legislature. To the latter office, he was elected three times. Although representing a minority party, his personal popularity was so great that all party lines were forgotten, and the majority of votes given to him was always very large. As a Legislator he proved to be a very careful and reliable man, and could have gone on further in political life, had he manifested any ambition in this line. These honors were accepted as subordinate and did not detract him from his regular professional work. After days at the Capitol at Hartford, he would return and spend the evenings and nights visiting patients.

Later he was appointed U. S. Pension Surgeon, which position he held for many years. As a practitioner, Dr. Strickland was a man of marked self-reliance with an independent, quiet, painstaking manner, reaching conclusions slowly, and seldom changing his opinion, except for some good reason. Among his contemporaries, he was regarded as a man of excellent judgment in medical matters and safe and careful in his practice. It is needless to say that the last forty or fifty years of his life, he was a typical leader in the community in which he lived and his judgment and services were sought for on many occasions outside the lines of medicine.

Many years ago I called at his office and found him writing a will for one of his old patrons; later I had occasion to see him in connection with a man who had become disturbed mentally, and I was astonished at his clear judgment about the case, and its prognosis. Later he became administrator for this man's property. His relations to the profession were very cordial, seldom

antagonizing anyone, but when differing he was frank and generous. He did not go away from home often except to the neighboring Medical Societies, but was a great reader, and followed with intense interests all the movements of the day.

It was his rare privilege to have patients extending over three generations, and to see at least two generations of physicians come and go in his neighborhood. The last few years of his life his business was confined to his old friends who sought his judgment and advice irrespective of all other counsels. Cirrhosis of the liver and Kidneys appeared during the later years of his life. A fire which destroyed his old office and many of his books and papers greatly intensified his disease by the excitement and shock which followed.

Finally General Paralysis came on with profound exhaustion and a few days later, December fifth, 1903, he died in his eighty-ninth year. Dr. Strickland's family relations were very pleasant. He was married in 1840 to Miss Sarah Luther, who died ten years later leaving two children, one of which is still living. In 1851 he married a daughter of Dr. H. A. Hamilton by whom he had two daughters. Both the widow and the daughters survive him. It is difficult to conceive the influence he had in the community, extending over sixty-four years, and no history can portray the life of one who has practiced medicine and been identified with the varied interests of his neighborhood. At his funeral the warm respect with which he was held, was attested by several clergymen, who had known him from infancy and childhood.

For a long time he was the oldest living graduate of the Albany Medical College. A few months before his death, at an alumni meeting at Springfield, congratulatory resolutions were passed, and he expressed a wish to reply to them with a short history of his life. This he failed to carry out. Dr. Strickland contributed a very few papers to medical literature, and those mostly re-

ports of cases, but they all showed a rare power of discernment.

To me he was one of the very few men whom I have met whose acute power of observation and reasoning along the subject of heredity seem to be very far beyond the current theories of the day. If he had been a writer, and put in print his conceptions of the laws of this most obscure realm of the transmission of mental and physical traits, he would have made a reputation as a thinker and a leader. While few of us may ever expect to extend our medical career over half a century, we can read in the lesson of his life possibilities from correct living and personal care which will take us down far into the future.

CHARLES FLETCHER SUMNER, M.D., BOLTON.

E. P. FLINT, M.D.,

ROCKVILLE.

Charles Fletcher Sumner, a son of Rev. Henry P. Sumner, a Methodist "local" preacher, was born in Gilead, then a society in the town of Hebron, March 28, 1817.

At the age of ten he entered as a student, a private school in Andover, taught by Isaiah Daggett, Jr., and later on taught by Rev. James Ely of Bolton. These schools, evidently, afforded educational advantages such as were enjoyed by but few in the rural districts at that time.

The subject of our sketch taught school, first in Glensbury, then in Stockbridge, N. Y., where he commenced the study of medicine with his brother, Dr. H. T. Sumner. He entered the medical department of the University of New York, from which he was graduated in January, 1840.

He practiced medicine for two years in Stockbridge, N. Y., then located May, 1842, in Bolton, where he continued in the active practice of his chosen profession until within two or three years of his death.

He married December first, 1852, Josephine M. White of Bolton. They had five children.

He died July twelfth, 1904, at the age of eighty-seven, after a six weeks' varying illness which finally developed into pneumonia, which was the immediate cause of death.

Dr. Sumner was a typical example of the sturdy, reliable and universally useful country physicians who flourished in our rural towns a half century ago.

Located some eight or nine miles from the nearest

pharmacy, and self-reliant, in his medical practice, he often accomplished a tactful application of household and ordinary remedies, and agents little used in modern medical practice, with an unusual percentage of successful results.

But his professional duties were not sufficient to satisfy his untiring energies, and he inclined to invest his hard-earned accumulations in business ventures.

He erected a paper-mill in Gilead in 1870, and engaged in the manufacture of paper until 1879, when the building was destroyed by fire.

He was an admirer and lover of good literature and read much, not in line with his profession. The writer recalls a lady's statement that when making a professional call at her home he chanced to take up a new and interesting book and continued reading until a messenger arrived summoning him to another patient.

As a citizen, his public life attested his versatile ability. He held the offices of Judge of Probate, Town Clerk, Justice of the Peace, was for over forty years a member of the school board, during most of that long period being acting school visitor; was for twenty years a trustee of the State Reform School; was member of the State Legislature in 1859 and 1887, and was medical examiner from the adoption of the present coroner system until his death. In fact, almost every honor within the gift of the town, soon or late became his.

In the affairs of the medical organizations, he was not less active. He became a member of the Tolland County Association in 1843, and later of the American Medical Association and the International Medical Congress, and in 1870-71 was president of the Connecticut Medical Society. Although he must drive across a hilly country from eight to twelve miles to attend the meetings of the County Association he was always present when his patients and health would permit. He was a regular attendant, too, at the meetings of the State Society,

often as a Fellow, always attentive and interested, and frequently taking part in the proceedings.

Withal, he was socially inclined, was a prolific conversationalist never wanting for subject or vocabulary.

Few lives, though protracted as his, can present such a list of life's activities.

ORLANDO BROWN, M.D., WASHINGTON.

W. J. FORD, M.D.,

WASHINGTON.

Doctor Orlando Brown was born in Groton, Connecticut, April 13, 1827, and died at Washington, Connecticut, August 3, 1904. His father was Benjamin Brown, who was also born in Groton; his mother was Mary Middleton, of New London, Connecticut, and he was a lineal descendant of the Reverend Chad Brown, who, on account of religious intolerance, left Massachusetts in 1638, and also of Elder William Brewster, who came to this country with the Pilgrims. Dr. Brown was educated in the University of New York and the Yale Medical School, from which latter institution he graduated in 1851, and immediately thereafter he began the practice of his profession in Warren, Connecticut, where he remained until 1855, when he removed to Wrentham, Massachusetts, continuing the practice of medicine there until the breaking out of the civil war. He then went into the service as assistant surgeon in the Eighteenth Regiment of Massachusetts Volunteers. The following December he was promoted to surgeon of the Twenty-ninth Massachusetts Regiment. In 1862 he was obliged to resign on account of ill health, but two months later he re-entered the service as an inspector of hospitals and the work of surgery in them, stationed at Newport News, Virginia. He was a member of the commission which organized the bureau of Refugee Freedmen and Abandoned Lands and was given charge of all the work south of the Potomac River. He was appointed assistant quartermaster of United States Volunteers. In 1865 he was made colonel of the Twenty-fourth Regiment of United States colored troops, and in the year 1866 he

was made brevet brigadier general. He resigned in 1869, and located in Washington, Connecticut, where he again took up the practice of medicine, remaining there until the time of his death. He was at one time president of the Litchfield County Medical Association and in 1889 was president of the Connecticut State Medical Society.

Doctor Brown was a physician of the old school, so far as that title applies to one who labors early and late in his profession, with very little thought of pecuniary reward. During the years of his active practice I believe that he never refused to attend a call night or day, when it was within his power to respond. As a practitioner he ranked among the first in the county, his practice extending many miles, and he was often called to the neighboring towns in consultation. He endured without complaint all the discomforts that fall to the lot of the country doctor. In his home circle and among his friends he was a most charming companion; a man well informed upon all subjects both at home and abroad; one who took a lively interest in all that was going on in his own town for the betterment of its people, and when finally age and infirmity compelled him to abandon the active part of his work, he drew about him many strong friends who were always pleased to spend an hour or an evening with him.

During the last few years of his life Doctor Brown was confined much of the time to his house and was a great sufferer. His fortitude and uncomplaining endurance especially during his last months, were a source of wonderment to all of us, and when death came the entire community united in profound mourning for the loss of one who had been neighbor, friend, and physician to all.

Doctor Brown was twice married. He married Frances Tallmadge of Warren, Connecticut, July 1, 1852. She died December 7, 1853 leaving one son, George Tallmadge Brown, who was also a physician in Margaretville,

N. Y. where he died in 1902, and on July 1, 1855, he married Martha P. Whittlesey, of Washington, Connecticut, who still survives him, as do their three children, Fanny P. Brown, Mary W. Perkins, and Dr. David C. Brown, who has been located in Danbury for nearly twenty years.

ASA HOPKINS CHURCHILL, M.D., MERIDEN.

EDWARD THOMAS BRADSTREET, M.D.,

MERIDEN.

ASA Hopkins Churchill, M. D., was born in Litchfield, Connecticut, in 1831. He was the only son of Hiram and Naomi Churchill. He graduated from The Hopkins Grammar School, and in 1857 received his medical degree from the Yale Medical School. He remained in New Haven two years after graduation, then went to Meriden, Connecticut, where he spent the rest of his life. He married in 1854, Miss Harriet A. Smith who survives him. They adopted, when a baby, a son who became so thoroughly their own that the doctor told me that for years he forgot he was not of his own flesh, and was shocked by surprise when during the fatal illness of the boy, grown to manhood, a consultant inquired into the hereditary tendencies of the patient. For many years Dr. Churchill was a prominent feature of Meriden. Aside from the ordinary practice of a general practitioner, he was for a long time medical attendant at the State School for Boys and physician for the town. About 1880, the larger and surer fees of a life insurance agent attracted him and he became a most successful solicitor for the Mutual Life Insurance Co. of New York, and had on his list nearly every insurable man in Meriden. He was a loyal member of this Society, and at one time its President.

In 1886 he developed an aneurism of the common carotid artery which necessitated the most careful living and practically the abandonment of the practice of medicine, although for many years after several families depended on him for their medical advice. Large doses of Potassium Iodide, which he took on advice of Dr. Henry B. Sands, practically cured the aneurism, but later he de-

veloped severe atheromatous degeneration and died October 17, 1903.

Dr. Churchill was extremely conservative. His faith in the minority was unbounded. He was a churchman, and his Church the only Church. He was a Doctor and the Medical Society his governing body: an Insurance Agent, and the Company he represented, the only Company. With such a temperament, he was of necessity a loyal friend and his home life was sure to be ideal. Had he lived another year, he could have celebrated a wedding anniversary that would have been truly a golden one.

SAMUEL ALLEN WILSON, M.D., WINDSOR.

NEWTON S. BELL, M.D.;

WINDSOR.

Dr. Samuel A. Wilson, the son of Samuel and Delia Wilson, was born in Windsor, September ninth, 1828. He was educated in the public schools of Windsor, and after studying medicine for a time with Dr. Peirson, who at that time was located at Windsor, he entered the medical department of Yale College graduating in the class of 1852. He came home to Windsor and began the practice of his profession, which he followed up to about 1884 when, owing to ill health he was obliged to give it up.

He married Miss Fannie Benton. Three children were born to them, a son and two daughters. Only one daughter is now living, his wife dying in 1871. He married three years later the widow of Jasper Morgan. One child, a daughter, was born to them who with the wife survives him.

He was a member of the Congregational Church for fifty-five years and took an active part in the management of its affairs, being its Treasurer for many years. He was also a member of the Hartford County Medical Association.

After retiring from active practice he devoted the remaining years of his life to the superintendence of the farm on which he lived, apparently much enjoying the outdoor life, although not strong enough to do much work himself. He was always of a retiring disposition, not easy to make friends with, but when once his acquaintance was gained, a most pleasant companion. His death which occurred on October ninth, 1904, was very sudden and unexpected. He retired in his usual health and was found dead in his bed the next morning.

JOHN O'FLAHERTY, M.D., HARTFORD.

NATHAN MAYER, M.D.,

HARTFORD.

One of the most generally liked and widely efficient medical practitioners of Hartford, died on July thirty-first of this year in Dr. John O'Flaherty. His practice was held largely among the better situated and more strongly Americanized class of his compatriots, but he also gave service—frequently gratuitous—to a considerable following of poor families. And among both classes he proved what it was not in his nature to avoid an utterly faithful and conscientious attendant, and one who, beside medical service yielded large measures of human sympathy and sound practical advice. The doctor was generally calm, self possessed, in good balance and cheerful humor. And his convictions and opinions were usually quite positive, so that his own assurance proved a direct means of encouragement to the patient.

As one might expect, the doctor stood on the medical grounds of his youth and prime and was conservative in his practice. But he was a good student and endowed with an excellent memory and fair judgment. Hence he utilized modern ideas without abandoning the bridges that had carried him. And in his private practice as well as in his hospital direction, he attained marked success and an enviable reputation.

He watched his patients closely and had both courage and promptness in meeting emergencies.

Personally the doctor was a man of fine appearance and courtly manners, with a tinge of old fashioned formality. He spoke clearly and in direct fashion, usually with snavity of tone and expression.

In public meetings he was a peacemaker, and though strong in opinion would compromise rather than permit a quarrel.

In his domestic habits he was very quiet and there were few evenings that he did not pass at home with his family.

The death of his first wife proved a terrible blow, and almost equally so the death of his only son at the age of fourteen. With these exceptions the doctor's domestic life was notably happy.

The offices he occupied during a practice of nearly forty years were all within a short distance—by the bridge, in Linden place, and on Main Street around the corner. This marks the conservative character of the man, and goes in hand with his quiet and proper habits that kept him in unbroken health from childhood till six months before his death.

The doctor was born in Ireland and remained there till eleven years old. And while few natives of the island had so entirely freed themselves of outward racial marks, he had retained the love for Ireland in an extraordinary degree. He studied Irish history and literature with much intensity, and was strongly interested in the efforts of Parnell and Gladstone to secure the autonomy of the Irish people.

He often reverted to the memories of his youth, and enjoyed descriptions of Ireland and discussions of her excellencies and claims very deeply. Yet he was a loyal and sympathetic American citizen all his life.

Dr. O'Flaherty died at sixty-two in the fullness of medical activity, and in a year when the Hartford Medical Society had elected him President.

He graduated at Albany and entered the army during the last year of the Civil War. At its conclusion he settled in Hartford and enjoyed for nearly forty years an almost unbroken course of practice, for he left the city rarely and then only for a few days.

In his later years his most notable accomplishment was the part he bore in the establishment and organization of St. Francis' Hospital, as presiding officer of the staff and a director. His successful plans, his careful ad-

justment of conflicting elements, his reasonable views and inspiring energy, and above all his self sacrifice and personal labor are beyond praise, and will keep his memory sweet and revered among those that were associated with him.

In Dr. O'Flaherty some of the best elements of the practitioner of the past found effective expression.

FRANCIS DANIELS EDGERTON, M.D.,
MIDDLETOWN.

MRS. C. HAZEN, M.D.,

GRADUATE.

Francis Daniels Edgerton was born in East Hampton, August twenty-sixth, 1838. He was the only child of Dr. Francis Griswold and Marietta (Daniels) Edgerton.

His father was an eccentric physician with a large practice, held in high esteem in all that region for his high character and as an excellent practitioner.

The son received all the advantages of education that could be obtained. At the age of twelve he entered the excellent preparatory school of Dr. David H. Chase. Later he studied at Wesleyan Academy at Wilbraham, Mass., and at the Academy at East Greenwich, R. I., and entered Wesleyan University in 1857 graduating in 1861.

After studying medicine with his father, he attended a course of lectures at the Berkshire Medical College and at the University of Vermont, where he received the degree of M. D. Soon after he passed an examination as assistant surgeon in the army, but circumstances prevented his entering the service of the United States and he further pursued his course of medical study by matriculating in 1863 at the College of Physicians and Surgeons, New York. In 1864 he received his second degree of M. D. at this institution.

He was then eighteen months an interne at Bellevue Hospital and later was six months at Blackwell's Island.

In July, 1866, Dr. Edgerton located in Middletown succeeding Dr. John Ellis Blake who removed to New York.

His ability and worth were recognized, and soon he

had a large practice which continued to occupy his full powers up to the end. Few men are equal to the intense strain of mind and body he endured in his thirty-nine years of practice.

Dr. Edgerton served as Clerk of the County Medical Association from 1873 to 77—from 1876 to '82 he was Treasurer of the Connecticut State Medical Society and in 1884-5 he served as president. In 1878 he delivered the annual address before the graduating class at Yale. He contributed from time to time valuable papers to the literature of his profession, and though his language was felicitous and his words forcible he allowed himself little time for what would seem to have been a pleasant recreation. His business was at the bedside of the sick, and to this he faithfully attended.

Always abreast of the times, he was easily the foremost man in his profession in the county and a peer among the best men in the country. His large frame, large head, and somewhat brusque manner at once enlisted attention, but his heart gentle as a woman's was recognized and inspired the patient with confidence.

He had a natural intuition in diagnosis, but was thorough and patient in investigating in any doubtful case. As a consultant, he was a model; honest, broadminded, and tolerant; hating duplicity and sham; he gave his judgment in a case with clearness and directness that was refreshing and satisfactory.

He always left the attending physician in the confidence of his patrons and left an aroma like that of a sweet flower when it is removed.

Indeed Dr. Edgerton passed through the world like a healing breeze, carrying cheer and blessing wherever he went.

In the memorial exercises at our annual meeting, Dr. Hallock spoke of his pleasant association with him on the Commission of Lunacy and Dr. Culef of the personal relations with him even before he studied medicine. Others made similar allusions.

Dr. Edgerton was the original and constant moving power in regard to the Middlesex Hospital. The president of the Board of Incorporators and chairman of its executive committee, through his wise solicitation most of its substantial foundation was obtained. Since his death a fund has been raised to establish a Free Bed to his memory.

Personally, Dr. Edgerton was for more than forty years a friend for whom I entertained the highest and most affectionate regard. It was a great shock when I heard of his sudden taking off and I felt that to me a great light had been extinguished. The last time I saw him was after a meeting of the staff at the hospital; he took me in his carriage to the station.

I had noticed he looked worn and tired, and I charged him to go slower and not work so hard, that he had reached the time of his life when he must put on the brakes—and I begged him to take care of himself.

He replied after a little thought, "No, Hazen, I must keep on; and shall die in the harness"—so he did.

Today he was busy, made an unusual number of visits at home; a consultation at Portland and Durham—tomorrow his work was done.

He went home late, ate a hearty meal, a fit of indigestion followed, the heart rebelled, an old angina seized him and at midnight he was called away before any of his neighboring physicians could reach his bedside.

There was a great shock to his dear family, to the city, and to all the country where he was so well known and honored; but perhaps it was a merciful dispensation and very likely as he would have it.

There was a remarkable hush at the great gathering at Trinity Church, a deep feeling of sadness as his body was tenderly borne hence to its resting place.

The Talmudic legend regarding Moses—perhaps the world's greatest character—comes to mind.

Heavenly lighted him—and he slept;
And smote the mountain and
Was felled for him, and 'twas writ—
Died by the kiss of God!

Dr. Edgerton in 1868 married Miss Amelia Dupont Cruger, a native of New Orleans, who survives him. He leaves three sons and one granddaughter. Harry, the oldest son, resides in East Hampton; his second son, Francis C., is a rising young physician in the city of New York; and John W., the youngest, is a lawyer in New Haven.

Dr. Edgerton crossed the ocean in 1881 with his friend, Dr. Hammond. In 1887 he took his wife and three boys to Europe. In '96 he took one son to Germany, where the son remained for a year's study. In '96 he attended the Congress of Physicians at Berlin and went to Oberammergau to see the Passion Play; the solemnity and beauty of which made a great impression on him.

He was fond of sight-seeing, and loved the ocean; but like all his work, he entered so intensely into it that it failed to give him the rest he needed.

Better than anything I can say is the tribute of Rev. Dr. A. W. Hazen published in the Tribune the day of his death, which I quote entire:

A BRIEF TRIBUTE TO THE PHYSICIAN BY ONE WHO
KNEW HIM WELL.

The sudden death of Dr. Edgerton is not only a painful blow to his numerous friends, but an irreparable loss to the community. Others will record the facts of his useful life. The writer, to whose family he has ministered with ceaseless fidelity and eminent skill for more than a generation, desires to lay upon his bier a brief tribute of esteem and affection.

Dr. Edgerton loved his calling and gave himself to it with untiring zeal. Inheriting a medical instinct, he developed it by study and observation till his diagnosis of an ailment came to be unusually accurate.

And he had the courage, as well as the force to act upon his convictions. He was wont to lay down strict rules for his patients, because he knew their value and necessity. This gave him sometimes an aspect of stern-

ness, yet there was no lack of feeling in his nature. Indeed, he was deeply tender and sympathetic. His kindness of spirit knew no limits. No one ever felt that he was working for any other end than the highest welfare of those under his care. He tended the poor and the rich alike, giving of his best to both. His heart was as big in proportion as his body. Children liked him, and how many of their precious lives did he save by his watchfulness.

The old leaned upon him, for they felt the strength of his stalwart arm. To his kindred no man was ever more loyal. Yet his ample soul gave him a kinship with all suffering mortals, and a desire to aid them.

Irrespective of his professional experience and attainments, Dr. Edgerton was a man whom it was a privilege to know. He was an intelligent student of men and affairs. His opinions on public questions were sagacious, and he was fearless in their utterance, when there was occasion for words. He desired the progress and well-being of the community. He was one of the prime movers in connection with the City Hospital, and no one was more happy at its opening than he. In a word, Middletown has lost in him, not only one of its most reputable physicians, but one of its most distinguished citizens. Though the language of religion was seldom upon his lips, the law of love and of honor was in his heart, while his life was a visible and radiant testimony to the nobility of his Christian character.

JOHN HENRY GRANNISS, M.D., OLD SAYBROOK.

CHARLES H. HUBBARD, M.D.,

EDITOR.

John Henry Granniss was born in Ridgebury, Conn., April sixteenth, 1844; he died in Old Saybrook, after an illness of one month of La Grippe, February seventeenth, 1905. He was the youngest son of William and Sally Granniss, and on the decease of his father, removed with his mother to Danbury, where his early education was acquired.

He subsequently entered Madison University, Hamilton, N. Y., and while a student there, in response to a call of President Lincoln for fifty thousand volunteers, enlisted, at the age of seventeen, in Co. "C," Seventh Regiment, Connecticut Volunteers.

After several months of service he was detailed to the Hospital Corps, serving two years in the Army and one in the Navy.

At the close of the war he entered the office of the late Dr. Robert Hubbard of Bridgeport, and subsequently the Medical Department of Yale University, graduating in 1868.

In December of the same year he came to Old Saybrook by invitation of a committee of the citizens, and for thirty-six years served that community with unflinching devotion.

In 1871 he was married to Miss Mary Witter Shepard, daughter of the late Deacon R. C. Shepard of Old Saybrook, who, with their two daughters, Misses Ruth and Sarah, survive him.

He was appointed Commissioner of Pharmacy in 1889, and again in 1892, for a second term of three years.

In 1901 he was elected President of the Connecticut Medical Society, was also a member of the American

Medical Association, the Central Medical Association, and for many years clerk of the Middlesex County Medical Association. He was prominently identified with the Grand Army Organization, and a vice-president of the Army and Navy Club at the time of his decease.

Dr. Granniss loved his profession; was an indefatigable worker, allowing himself brief vacations only at long intervals; prompt in response to every call of duty, faithful alike to rich and poor; at the bedside cheery, confident and inspiring confidence in his patient; thorough and painstaking in investigation; hence, his diagnosis made, he had the courage of his convictions, as against all opposition, yet subject to modification, if convinced of an error, whether relating to diagnosis, prognosis or treatment. He acquired an extensive practice in his own and neighboring towns; was frequently in demand as a consultant, for combining excellent qualities as a counsellor, with uniform courtesy and a high sense of professional honor, he was ever a welcome adviser.

Indeed, one of his characteristics was his enjoyment of the society of his professional brethren, and so far as possible, he was present at the meetings of his State and County Societies, his record of attendance possibly not exceeded by any of our members.

Conservative by nature he adjusted himself to new theories or methods, as they commended themselves to his intelligent judgment; always a student, he endeavored to be "abreast of the times" in all that related to his profession.

If he excelled in any special matter it was in obstetrical work, as the writer from abundant observation, can testify; yet he was an "all-around" man to whom in every line of professional service, success in good measure came.

He accepted fine positions of trust or responsibility in the community, his professional work requiring his entire time and effort; yet served many years as Health Officer and Medical Examiner; while deeply interested

in every matter pertaining to the welfare of his people.

Our brother seldom referred to the Faith which dominated his higher life, or to the Hope which cheered his future; both were evidenced in the Charity which expressed itself in tender sympathy, unwearied devotion and conscientious fidelity.

He made the community better for his living; and when his mortal illness came, and the clouds gathered, love and loyalty scarcely found limit in their expression.

His life was a benediction, his death an inestimable loss, but fragrant memories of the physician beloved, will long abide.

THOMAS BLANCH BLOOMFIELD, M.D.,
WESTBROOK.

CHARLES E. STANLEY, M.D.,

MIDDLETOWN.

Dr. Thomas Blanch Bloomfield was born in New York City, November seventeen, 1846. He was the son of Judge William Bloomfield and Catherine Van Meter Cross-Bloomfield. On his paternal side he was a descendant of Governor Bloomfield of New Jersey, whose homestead was in the family for over two hundred years. By his mother he was a direct descendant of the early Dutch settlers.

The Doctor attended the public schools of his native city and was fitted for college at the early age of fifteen years, but was not allowed to pursue further study until he was seventeen, when, in 1863 he entered Rutgers College at New Brunswick, N. J. Several years intervened between his academic and professional courses of study. In 1876 he received the degree of Doctor of Medicine from the College of Physicians and Surgeons in New York City. In 1874-76, prior to his graduation in medicine and for a short period thereafter, he held a professional position in the General Hospital for the Insane at Middletown, Conn. He also received instruction from the master nerve-specialist of that day, Dr. Edward G. Seguin, and had other opportunities for study at Bellevue and the Epileptic Hospital on Blackwell's Island, New York.

On July sixteenth, 1876, he married Miss Nellie B. Luther of East Haddam and in April of the following year, they moved to Saybrook where he practiced medicine for two years. He was then called to Westbrook where he remained until his death on February seventeenth, 1903. He had a very extensive practice in Westbrook, also in Saybrook, where his short stay of two

years had endeared him to many families who continued to call him from his new location. He was considered an exceptionally clever diagnostician and his medical skill will long remain a by-word in Westbrook and its vicinity. Dr. Bloomfield was frank and outspoken, and had many critics as every country doctor has, but even the bitterest of these do not and cannot, to this day, cast any slur on his professional ability. What better compliment can be paid to the talents of any man?

Dr. Bloomfield was a member of Sikam Lodge, No. 32, Free and Accepted Masons, of Saybrook, and served as Secretary and Treasurer of the School Board for a number of years. At the time of his decease he was Health Officer and Medical Examiner for his town and Examining Physician for all the leading Life Insurance Companies doing business in the section covered by his practice. He was a member of the Episcopal Church and it was largely through his efforts that the present church edifice in Westbrook was built.

He leaves a widow and seven children, Catherine Van Meter Cross, of New York City, James Browder of Ivoryton, Conn., William, of St. Louis, Mo., Thomas, Blanch, Jessie, Eva and Luther, who are living at home with their mother.

Dr. Bloomfield was a physician who was in love with his profession. He strove to heal the sick and comfort the sorrowing, often under most trying circumstances. Until the last few years of his life when weakened by incurable diseases, he never refused a professional call, and went as cheerfully to the penniless as to the rich. Had he selected a wider field and professed to follow the mercenary rules which govern the business world of to-day, he would have undoubtedly been able to amass quite a comfortable fortune, but he chose otherwise. Every physician may well covet the eulogy which many fathers and mothers even now frequently pronounce: "Dr. Bloomfield was so kind to us when we were in trouble."

ANDREW WOLFF LYONS, M.D., BRIDGEPORT.

JOHN WINTHROP WRIGHT, M.D.,

BRIDGEPORT.

Andrew Wolff Lyons was born in McArthur, Ohio, August eleventh, 1852, where his earlier school life was spent. After his graduation from a college in Athens, Ohio, he went to the Columbus Medical College in Columbus where he received his degree of M. D. in 1876.

For two years he practiced medicine in his native town then came to Connecticut and opened an office in Monroe where he practiced and married, until 1882.

The choice of location proved unsuitable to his ambitious nature and his marital relations proved still more unfortunate so severing the bonds which bound him to both, he came to Bridgeport where he continued until his death.

In October, 1880, he married Alma Bassett of New Haven, who loyally and devotedly loved and cared for him during the remainder of his life, the latter portion of which he spent as a partial invalid, the result of articular rheumatism. During the twelve years he practiced in Bridgeport, he gained a large circle of friends and patients and was in attendance and a contributor to the City Medical Society where he was held in esteem by his brethren. He joined St. John's Lodge and the Algonquin club.

Naturally of a good physique and pleasing personality he gained and kept his patients long after the inroads of the rheumatism upon his heart and kidneys, incapacitated him for considerable periods of time from his business.

With indomitable spirit, suffering with pains and after sleepless nights, against the entreaties of his wife and

advice of his physician, I have known him to go about his business and patiently make his culls without revealing his ill.

Reviewing the life of Dr. Lyons some way reminds one of Ernest Seton Thompson's story of the grizzly whose splendid power and strong spirit surmounted every obstacle and overcome every difficulty until finally overcome by racking pains and lessening ability to cope with the enemies of his existence he withdrew from their presence and courted death by nature's force in a lonely valley.

Unlike the lonely grizzly, his last years were passed amid the comforts of a home and the ministrations of a faithful and devoted wife.

On October sixth, 1904, he passed out of this life into the next, quietly and peacefully, like "one who wraps the mantle of his couch about him and lies down to pleasant slumbers." His wife, a widowed mother, one brother and one sister survive him and mourn his death.

The full ritual of the impressive Masonic rites were given at his funeral, and he was laid at rest in Mountain Grove cemetery to which he was attended by delegations from the lodge, club and society.

WILLIAM DAVID SPENCER, M.D., SAYBROOK.

FRED SCHNER SMITH, M.D.

—CHIEF—

William David Spencer, son of Daniel Chapman Spencer and Emily Maria (Stokes) Spencer, was born at New Haven, Conn., July fifteenth, 1852.

In early infancy his family moved to New York, and with the exception of a few years in boarding schools, his education was obtained in New York and Brooklyn. He took his medical degree at the New York College of Medicine and Surgery in the winter of 1874, spent eighteen months as interne at Charity Hospital and then entered upon the general practice of medicine in New York City, being associated for a time with Dr. Janeway. He was a member of the New York City and County Medical Society.

After ten years he discontinued the practice of his profession, and made his home in Old Saybrook, Conn., helping Dr. Grannis when his services were needed, but doing nothing for himself until the last few years of his life when he gradually resumed his work, joined the Middlesex County Medical Association (1897) and was in active practice when he succumbed to an attack of pneumonia June third, 1904.

Dr. Spencer was unmarried.

WILLIAM CHADBOURNE HAVEN, M.D.,
COVENTRY.

E. P. FLINT, M.D.,

ROCKVILLE.

Doctor William Chadbourne Haven died at his residence in North Coventry, December twenty-sixth, 1904, after a brief illness of epidemic influenza complicated with pneumonia.

Doctor Haven was born September fifteenth, 1831, at Charlton, Massachusetts, of notable parentage. His father, Rev. John Haven, was pastor of the Congregational Church of Charlton for thirty years. He was of the old time type of New England clergymen, honored and respected, a veritable "father of his flock." He was possessed of remarkable vitality and energy, an indomitable will, unusual mental and executive ability, and sterling integrity of character.

With all his rugged qualities of mind, he was very sympathetic but not emotional, and had the faculty of making and retaining friends. His strong mental qualities continued unimpaired up to the end of life at eighty-four.

In his mother's line, Doctor Haven came from an ancestry of physicians. Dr. Peter Green, his son-in-law, Dr. William Chadbourne, and the latter's son, Dr. **Thos.** Chadbourne, grandfather of Doctor Haven, were all successful and well-known practitioners of medicine in Concord, New Hampshire, each having been located in that city and in active practice for nearly fifty years. A maternal aunt married Dr. Charles Berry of North Conway, New Hampshire, a sister married Dr. I. P. Fisk, now of Coventry, Connecticut, and the son of another sister expects to graduate in medicine during the current year. Dr. Arthur Chadbourne, a cousin, is now a

well-established and prosperous physician with his office at 225 Marlborough Street, Boston, Massachusetts.

Dr. Haven inherited many of his father's characteristics. He was an omnivorous reader from childhood, and year by year, under his father's tutorage, supplemented by a course at Munson Academy, he acquired a broad and thorough mental discipline which in later life impressed those who became the most intimately acquainted with him as being rare and notable. He received his medical education at the University of New York from which he was graduated in 1877, and served as assistant physician at the New York Insane Asylum, Ward's Island.

Dr. Haven first located for practice at Gilbeeville, Massachusetts, but soon moved to Brookfield, Mass., and in 1884 to Bristol, Connecticut. From the latter place he removed to North Coventry, March first, 1885, where he continued in active practice until his death.

On June nineteenth, 1877, he married Lucy R. Pitts of Charlton, Massachusetts, a schoolmate of his childhood, both being born and reared in the same school district.

They had two children, Walter S., born June fourteenth, 1882, and Anna H., born October seventeenth, 1887. The daughter died April fourth, 1892, of diphtheria. The son is a valued assistant at the Stanley Works at New Britain.

Always the quiet and unassuming, yet dignified and courteous gentleman, it required years of acquaintanceship to become thoroughly conversant with Dr. Haven's many estimable qualities of mind and heart. Like his father, sympathetic but not emotional, his patients gradually came to rely upon him, not only as physician, but as friend and adviser. His universal knowledge and sound judgment never failed him, and were brought freely into requisition for the benefit of his friends.

In his professional work he exhibited a rare thoroughness in the observation and study of his cases; and any professional brother called in consultation with him was

sure to find that he had acquired a thorough knowledge of his case in detail of diagnosis and treatment.

His own business and social affairs were managed in the same quiet, self-reliant and successful manner. Thus his mistakes were few and of slight importance, and his sterling qualities brought him, without his seeking, rather promptly into public prominence. His townspeople elected him as Representative to the General Assembly in 1889 when he had been a resident of Coventry but four years. He became a prominent member of the House, serving creditably on the Committee on Humane Institutions, and also, was House Chairman of the Joint Committee on Constitutional Amendments. He was elected state Senator from the Twenty-third District in 1899, and during that term served as Senate Chairman of the Committees on Public Health and Safety and State Library. He consented to enter the political arena from principle, believing that those with pure motives and high ideals could and should wield a beneficial influence.

Meanwhile, he responded to the call of duty in other matters. He was interested in everything that tended to increase the prosperity and attractiveness of his town. He was for many years master of his Grange, and the first president of its Improvement Society. He was also president of the local Bolton and Coventry Telephone Association of which he was one of the principal founders, from its inception till his death. He was actively interested in the local Congregational Church, was one of its musicians, and Treasurer of its Society. He was a Mason and his burial service was conducted in accordance with the Masonic ritual.

Dr. Haven's professional life was a demonstration of the ideal physician in that he mingled harmoniously the theoretical with the practical. In his reading, keeping well abreast with the up-to-date theoretical, he made it subservient by judiciously employing in his practice whatever had been proven.

A member of both the Tolland County Medical Association, and the Connecticut Medical Society, he was quite regular in attendance at their meetings and well interested in the proceedings. He was repeatedly elected a fellow from the County to the State Society, had served one full term as president of the County Association, and held that office at his decease.

We must place Dr. Haven in memory, among those whose virtues, on intimate acquaintance become magnified and more numerous, and whose faults prove to be imaginary.

A man who had met him frequently, over a long period of years, both personally and professionally, remarked, "I do not recall one unpleasant word or act of his."

And another, acting under conditions favorable to securing accurate information wrote: "He is a man of strictest integrity and enjoys the confidence and respect of all who know him, whether in his professional or social relations."

LOREN TRUE DAY, M.D., WESTPORT.

WILLIAM H. DONALDSON, M.D.,

FAIRFIELD.

Dr. Loren True Day died at his home in Westport on April first, after a lingering and trying illness. In his death Fairfield County Medical Association loses a valued and faithful member, a former president and clerk. Always a regular attendant at our meetings, active and zealous in his official duties, his face will long be missed from our gatherings.

Dr. Day was born in Bridgeport, August eleventh, 1860, but most of his earlier years were spent in other parts. At the age of sixteen he began to prepare for the study of medicine. He fitted for Yale Medical School with Dr. Lander of Bridgeport, and graduated in the class of 1880, being valedictorian of the class.

He then pursued a post-graduate course at the College of Physicians and Surgeons of New York City and spent some time as an assistant to Prof. Marsh of the Peabody Museum at Yale. He served as House Physician and House Surgeon at the New Haven Hospital.

On finishing his hospital service in 1883 he took up the extensive practice of Dr. Borton in Westport, who was just then retiring from active work. He joined this Society a few months afterwards, serving as clerk from 1890-96, Vice President in 1899 and President in 1900. Both as member and officer he acquitted himself with credit to the Society and the profession.

He was also a member of the American Medical Association, and an honorary member of the Bridgeport Medical Society.

He served on the school board during most of the period of his residence in Westport, most of the time as secretary of the board.

He was also the Town Health Officer until within a year of his death.

He took a high stand in the Masonic fraternity, being secretary of Temple Lodge for several years, and a member of Clinton Commandery and Pyramid Temple. He was also a member of the Sons of the American Revolution, being descended on both sides from Revolutionary ancestors. He was active in the social, literary and church life of the community, serving as vestryman in Christ Church for a time, later joining Holy Trinity. On entering his work at Westport he took into life-partnership, Miss Frances Stevens of New Haven.

In his work he maintained the high standard of his predecessor and continued active until stricken with his final illness about three years ago. Even then he did not surrender to the arch-enemy but struggled as best he could against great odds until a few months before he passed away.

A widowed mother, wife and daughter are left to mourn his loss.

THOMAS LINCOLN AXTELL, M.D.,
WATERBURY.

NELSON ASA POMEROY, M.D.,

WATERBURY.

Dr. Thomas Lincoln Axtelle was born in Allegheny, Penn., April twenty-eighth, 1852, and died in Waterbury, September twenty-sixth, 1904. English and French blood mingled in his veins. He was born a farmer's son and his boyhood days were spent on the farm, where he assisted his father in the work, and helped build up that fine physique and those unusual powers of endurance which in after years stood him in good stead in his busy professional life.

Dr. Axtelle had not the early advantages of wealth. He received a common school education, and ultimately attended the Tenth Normal School of Pennsylvania, where he was graduated valedictorian of his class.

He taught school for several years and was for a time superintendent of public schools at Independence, Iowa. It was while teaching school that he laid the foundation for his deep knowledge of history and the classics. In 1878 he was entered as a medical student at the Bellevue Hospital Medical College, New York, where his great natural abilities soon placed him in the front rank of his class, and from which he graduated with high honor, and with special commendation from his professors in 1881. At the time of his graduation he was president of his class. After the completion of his college course, he entered the Woman's Hospital as interne, serving the usual term, and subsequently was a member of the house staff of the Randall's Island Hospital.

In 1885 he went to Waterbury and formed a partnership with the late Dr. Alfred North, then the leading practitioner of the city; this partnership lasted till the retirement of Dr. North from active practice in 1893.

In person Dr. Artelle was about five feet eleven inches in height and weighed about one hundred and eighty-five pounds. He stood erect, was deep-chested and broad-shouldered and gave an impression of great vital force and muscular strength. His head was large, he had a broad expansive forehead and the cranial capacity was much greater than the average. His eyes were blue with a kindly expression. His nose was rather large. He had high cheek bones and a slightly receding chin. His hair for a year or two had been of a silvery whiteness. The expression of his face was kind but strong. His manner was genial and he was inclined to sociability, easily winning the confidence and friendship of his patients. His mouth was rather large, his utterance clear. His language was precise and pure, and he was never at a loss for the right word in conversation or in debate. His facial expression depicted thoughtfulness, high mental power and inflexible resolution.

His body was the casing of a noble soul, and a mind of the highest intellect. It may be said with truth that he was a man of powerful mind, rare sagacity, and profound erudition. His generosity went beyond prudence. What his gifts were in private no one ever knew.

He had few intimates; to them he gave his utmost confidence. To all he was frank. Every child he chanced to meet was his fast friend and sworn comrade, and he never was happier than when adding to their pleasure.

His vast experience in the field of medicine and surgery, his knowledge of its literature, his remarkable frankness in truthful observation, made his words to his patients almost as the laws of the "Medes and Persians, which altereth not." As a consulting physician and surgeon his visits extended over a large territory. It was always a luxury to see his noble form, his bright face, and in emergencies to feel that in him one had a wise and reliant support.

He possessed keen insight and deep penetration. His

remarkable powers of quick and accurate observation endowed him with excellent diagnostic ability; his calm confidence rendered him a hopeful prognosticator; and his selection of curative agencies was guided by sterling common sense, combined with accurate information regarding the most recent advances in therapeutical art. His professional courtesy was of a very high order.

To the younger members of the profession he was always a wise and willing counselor and helpful friend. Many a successful practitioner in Waterbury owes his success in a great measure to the kindness of Dr. Axtelle.

Dr. Axtelle was a member of the State Medical Society, The Waterbury Medical Society, The County Association, The Woman's Hospital Alumni Society of New York, consulting physician on the staff of the Waterbury Hospital, surgeon for the New York, New Haven and Hartford R. R. Co., ex-surgeon with the rank of major to the Second Regiment, C. N. G., and was for many years Medical Examiner of Waterbury.

As a tribute of love, I take pleasure in placing on record the history of my preceptor, a charming companion, a true and devoted friend.

Stricken in his prime, he died suddenly as he had often expressed a wish to die. "Let death come quickly when it does come," he used to say. And it came quickly. Quickly the melancholy news—"Dr. Axtelle is dead" spread through the city carrying sorrow everywhere; literally so, for in no part of the city was a place where he did not have at least one devoted friend. All hearts were touched. The entire community felt that it was a public calamity. All were dumb in the painful sense of a great personal loss. He died in the fifty-second year of his age, too young for a man of his talents and of his great capacity for usefulness.

Such is a brief history of the man whose death we deplore.

JOHN JOSEPH WILSON, M.D., BRISTOL.

WILLIAM W. HORTON, M.D.,

BRISTOL.

The death of Dr. John J. Wilson, Monday morning, February twentieth, 1905, came as a shock to his many friends who were not acquainted with the seriousness of his condition. Though he had been a sufferer from a cancer of the liver for some time he was not taken seriously ill until Friday, February eighteenth, 1905. He was seized with serious hemorrhages Monday morning which hastened the end.

He was born in Boston fifty-one years ago, receiving his early education in the school of that city where he prepared for the pursuit of his profession and immediately met with decided success, in building up a large practice. He was especially skilled in surgery and several operations performed by him attracted wide attention among the medical profession.

Dr. Wilson performed the first successful operation of skin-grafting which received much attention in the medical journals. In his practice he was inspired by a thorough confidence in his ability. He was especially skilled in skin and lung diseases. The doctor was married eighteen years ago to Miss Catherine Cogan of Washington, D. C., who, with two sons, John Joseph and Edward Joseph, survives him. He also leaves two brothers, Rev. Joseph Wilson of Springfield, Ill., and Dr. William P. Wilson of Wallingford; and three sisters, Mrs. Clarke, Mrs. Harney and Miss Winnifred Wilson, all of Boston.

He was a member of the board of School Visitors for seventeen years and took considerable interest in our school systems. At the time of his death he was the oldest member of the board in term of service. He was a member of Palos Council, K. of C., and of the Catholic Benevolent Legion of New Britain.

JAMES ALBERT MOORE, M.D., NEW HAVEN.

W. M. KENNA, M.D.,

NEW HAVEN.

A feeling of malaise and of general depression caused Dr. James A. Moore, a member of this society to take to his bed on Monday, March 6, 1905.

The next morning he felt somewhat better and he was able to attend to his professional work.

Between 4.00 and 7.00 p. m., however, a head pain of which he had been complaining, increased in intensity; and early in the evening he was compelled once more to retire. He then rapidly developed symptoms of cerebro-spinal meningitis, and died of that disease about midnight two days later, on Thursday, March 9, 1905.

Dr. Moore was born at Oxford, N. Y., on the 9th of July 1866. He entered the academic department of Yale University with the class of '92 and was graduated in that year with full academic honors. In the fall of that year he matriculated at the Yale Medical School and two years later, in 1894, he received his diploma of Doctor of Medicine from that institution.

Shortly after his graduation, he began the practice of medicine here in New Haven. Year by year his practice increased; and at the time of his demise he was certainly one of the most successful of the younger physicians in the city.

Dr. Moore's death was tragic in its suddenness and it produced a feeling of dismay throughout the community. The expression of sympathy and sorrow was heard on every side.

His death was particularly sad coming, as it did, at a time when he had reached the prime of life and was beginning to reap the harvest as a reward for the hard work he had done in earlier manhood. For he had had

many struggles and had overcome many obstacles in his efforts to obtain his degrees; and now, as he was coming into his own, he must die.

I believe his most striking characteristic was his loyalty. That was always unswerving. There was nothing of disagreeable self-assertion or unpleasant aggressiveness about him. His professional work, successful as it was, always showed quiet energy and well-poised enthusiasm.

He was beloved by his patients and they felt themselves secure in his hands, and that feeling of security never diminished with more intimate knowledge and association.

In Dr. Moore's death both the medical profession and the community at large has sustained a severe loss.

THE BANQUET

Was attended by more than one hundred members and guests at the Allyn House.

Dr. Ingalls acted as toast-master.

Representative Hugh M. Alcorn, representative from Suffield, spoke for the "State of Connecticut," in place of His Excellency, Governor Roberts, who was detained in New Haven, and unable to be present.

Dr. Carmalt responded to the time-honored toast, "The Connecticut Medical Society."

Rev. Dr. John Coleman Adams and Rev. Dr. Twichell were also among the speakers.

At 11:30 the exercises closed with the singing of "Auld Lang Syne," and thus ended one of the best meetings in the history of the Society.

REPORT OF COMMITTEE TO NOMINATE
PHYSICIAN TO THE RETREAT
FOR THE INSANE.*

New Haven, Conn., Nov. 15, 1904.

To the Fellows of the Connecticut State Medical Society:

Your Committee to nominate a physician to the Retreat for the Insane begs leave to submit to you the following itemized report of what it has done in relation to the matters delegated to it up to the present date.

On the 20th of June the chairman received the following letter:

Hartford, Oct. 18, 1904.

Dear Sir:

At a meeting of the Directors of the Retreat for the Insane, held Oct. 18th, the following resolution was passed:

"Voted. That the President be a Committee to communicate the resignation of Dr. Stearns to the Chairman of the State Medical Society appointed to nominate a physician for the Retreat, and request the early action of said Committee on the nomination of a successor, as a Physician to the Retreat, and that the Board recommend the nomination of Dr. Whitefield N. Thompson."

Dr. Thompson is now assistant at the Institution in Brattleboro, Vt.

I would suggest that the Committee meet at the Allen House, in this city, on Tuesday, 28th inst., at 3 o'clock P. M.

The Board of Managers of the Retreat will be at the Allen House to give any information which may be desired.

GURDON W. RUSSELL, Pres.

The committee consists of:

Dr. H. L. Swain of New Haven.

Dr. Thomas F. Rockwell of Rockville.

Dr. J. M. Kenlaton of Hartford.

Dr. H. L. Hammond of Killingly.

Dr. A. R. Diefendorf of Middletown.

On June 21st the following letter was sent in reply:

Dr. G. W. Russell,

My Dear Doctor:

Since receiving your letter yesterday morning, which contained my first knowledge that I was Chairman of the Committee of the State Medical Society, there has been not a little effort spent in trying to get at the other members of the committee. It was with considerable vexation of spirit that I was able, with the help of the telephone, to learn the following facts, after sundry and divers attempts to catch the wary practitioner as he went from place to place.

One member had resigned. Dr. Wordin, the Secretary of the State Society, tells me his successor has not been appointed. Another member cannot be had all next week because he is to be away from the State. This week it will be impossible for me to do anything more about the matter, as I am extremely busy with examination papers, these, and other commencement work. So you see I am hopelessly blocked, and cannot possibly do as you so kindly suggest, meet you at the Allyn House next Tuesday.

I hasten to assure you, however, that it shall be my earnest endeavor to get the Committee together as soon after July first as I can. I will inform you immediately of the date as soon as it is settled.

Regarding the gentleman whose name you mention in your letter, I am very sorry to say that I know little or nothing, and I would most cordially desire that our Committee be put into full possession of all the facts pertaining to his work either before or at the time of the meeting of the Committee.

I regret very much that I am compelled to put off the meeting from next Tuesday, and hope to have the final date settled in a few days.

Very respectfully yours,

H. L. SWAIN.

In reply to this the Chairman received the following letter:

Hartford, Conn., June 23, 1904.

Dr. H. L. Swain,

New Haven, Conn.,

My Dear Sir:

I beg to acknowledge the receipt of yours of the 21st inst. I forebaw some of the difficulties which you have met, but trust that a meeting may be secured early in the next month. Of course you can hold your meeting where you please, but I thought that the Allyn House might be convenient for you, and so ventured the suggestion of place and date.

Dr. Thompson comes to us very strongly recommended, and he had the unanimous vote of the Directors of the Retreat.

Very respectfully yours,

GURDON W. RUSSELL.

In the meantime Dr. Dieffenderf having resigned, Dr. Frank K. Hallock, of Cromwell, was appointed in his place by Dr. Carmalt, your President.

The Chairman was able to arrange for a meeting of the Committee on July 12th at the Allyn House, and a note was sent to Dr. Russell apprising him of the fact and including a request that representatives of the Board of Directors be cordially invited to meet with us at that time. There appeared for the Directors the President, Dr. G. W. Russell, Dr. Henry P. Stearns, Mr. J. D. Bronne, and the Treasurer, Mr. J. M. Holcomb. A very full and explicit report was given us by Dr. Russell

and the other gentlemen. Dr. Russell spoke to us of the way in which the previous superintendents had been selected, indicating to us that it had been formerly the custom, as had occurred in the present instance, for the Committee of the Directors of the Retreat to present the name of the physician with whose qualifications they were satisfied as one abundantly able to worthily fill the office of superintendent of the Retreat. The Committee of your State Society, it was reported, in most instances met in Hartford, acquiesced in the expressed wish of the Directors, partook of a good dinner, and dispersed to their several homes with the feeling of satisfaction which follows a good deed well done. It was related that on two occasions the Committee of the State Medical Society had not been able to agree and coincide immediately with the wishes of the gentlemen representing the Board of Directors. On one occasion it was stated that a candidate was proposed by the members of the State Society and that he was elected. He, however, did not serve long in his position. On the second occasion when there was a difference between the Board of Directors and your Committee, it came about that the candidate proposed originally by the Directors was finally installed. So far as could then be judged by your Committee, gathering as it did its knowledge from the verbal report of Dr. Russell, the occasions when the Society's Committee had differed from the Directors of the Retreat were few, and that when they did venture to express a different opinion from the expressed wishes of the Directors, it was of but little if any avail.

We trust that the Fellows of the Society will appreciate the fact that the instances where the functions of the Committee were called into requisition were not very numerous, as the present incumbent, Dr. Stearns, has served for thirty years, and his predecessor something like twenty years, and that the Institution was originally chartered in 1824. So that on the whole it may be said, on the other hand, that the Board of Directors of the

Retreat for the Insane have generally presented a candidate of such exceptional merit that your Committee found it unnecessary to interpose any objection to his being given the office, and the evidence is presumptive that your Committee rarely had a candidate in mind whose qualifications were so generally superior to the one presented by the Directors of the Retreat that it seemed necessary to even propose his name for their consideration. It is evident, we may assume, as was taken for granted by your present Committee, that the Board of Directors had very carefully considered all the requirements necessary in a superintendent, had thoroughly investigated all the material in the country which had at all come up to the high standard which they set, and from among all the gentlemen in the country who were eligible to such an appointment selected the person whom they thought represented the man best suited to all the needs of the Institution.

In the present instance we also learned from Dr. Russell that he believed the dual relation to the Retreat which was represented by its Directors and the State Medical Society was a beneficent institution. It, however, seemed to him that at the present time it had in a measure outlived its usefulness. He instanced that a similar relationship had existed between our State Society and Yale College in connection with the granting of diplomas to the gentlemen seeking to practice medicine from instruction received in the Yale Medical School. He drew our attention to the fact that when it had reached the point when this relation of the State Society to Yale College had seemed to have no further value, that by act of legislature such relationship had been dissolved, and also stated that it is not at all improbable that such might be the future of the present connection of the State Society and the Retreat for the Insane in Hartford.

Following Dr. Russell's very complete statement of the affairs as related to the appointment of previous

superintendents, Dr. Stearns made some remarks concerning the qualifications of Dr. Whitefield N. Thompson, of Brattleboro, Vt., extolling in particular his qualifications as a man and as a superintendent. Mr. Brown then presented a large number of letters which had been received by the Committee of the Board of Directors concerning Dr. Thompson. One of them gave us his life history from a medical standpoint. One or two others spoke of the high character of his work in connection with the two retreats with which he had been connected since graduating. A number of other letters were read, being only a few of those in the possession of Mr. Brown relative to the business qualifications of the man, his character and attainments along the lines of the needs of a good superintendent. To our minds as a committee great stress was laid upon this point. We were told by all four of the gentlemen that it was necessary for the man who was to be superintendent of the Retreat to be one of exceptional business qualifications. Mr. Holcomb, who as Treasurer had to handle the funds of the Institution, told us how much money went through the hands of the superintendent, and how necessary it was that the properties and moneys of the Institution should be handled by a superintendent who understood finance in all the wide significance which this term expressed.

Your Committee then asked the gentlemen a number of questions to enlarge upon the various points which had been brought up during the interview, and the gentlemen representing the Retreat withdrew, after having received the thanks of the Committee for coming before them, and for the very great pains which they had taken to acquaint your Committee with all the facts in their possession. Certainly as the Committee looks back on the interview, nothing could have been more gentlemanly and courteous and, in a word, complete than the evidence which was brought to your Committee by the Directors, and our Committee would desire to hereby put itself on record as expressing by this means its thanks again

for the cordial way in which the Committee of the Directors gave of their abundant knowledge for our use.

Your Committee then went into executive session, talked the matter over from all standpoints, and as a result of the deliberations there was subsequently elaborated a letter which was sent to all the members of the Board of Directors of the Retreat for the Insane.

New Haven, Conn., July 30, 1904.

To the Honourable Board of Directors, Retreat for the Insane, Hartford, Conn.

Gentlemen:

On July 12, 1904, at the Allyn House, Hartford, representatives of your Board met in joint session with the Committee appointed by the Connecticut Medical Society to nominate physician to the Retreat. Dr. G. W. Russell, your President, presented the name of Dr. Whitefield N. Thompson, of Brattleboro, Vt., as representing your choice of a successor to Dr. Henry P. Stearns upon his proposed retirement. Mr. Browne, Dr. Stearns, and Mr. Hedeboom spoke of the qualifications of Dr. Thompson and described him as the type of physician they desired to fill the position in question.

The Committee of the Connecticut Medical Society then went into executive session, and the undersigned were instructed to convey to you the results of its deliberations.

As preliminary, the Committee may be allowed to state that it conceives its duty and function to be of a twofold character. First, to aid and co-operate with the Directors in promoting the true welfare of the Institution. This is its chief and paramount duty. Secondly, or more properly linked and involved in this, must the Committee, as the representative of a large, and to the Retreat, the most vital professional body of the State, be faithful to the best interests of that body.

In the present instance this Committee, in the fulfillment of its function, regrets to state that it finds itself

in a most awkward and unhappy position. On the one hand it appreciates the fact that you, as Directors, have all the responsibility in the conduct of the Institution, and, therefore, your wishes should be most deeply respected. On the other hand, while the Committee has every desire in the world to follow your lead, it, nevertheless, feels constrained to say that, at this time and with such light as it has, it cannot unqualifiedly endorse the nomination you have made. It noted with satisfaction the unquestioned standing of Dr. Thompson as a man, his excellent qualities as an executive officer, and the testimony of his success as a practical physician to the insane. The Committee failed, however, to perceive the evidence of his scientific training and attainment.

You, as business men, naturally emphasize the practical side of the requirements necessary for the Institution's chief officer. The Committee, as medical men, are inclined to dwell upon the importance of special and superior scientific work in the treatment of this, the most difficult, obscure and serious of human afflictions. It will be found, therefore, that the medical men of Connecticut, if they are to continue to send patients to the Retreat, will insist on scientific qualifications fully as much as on administrative ability in its superintendent. It must not be forgotten that physicians are the chief feeders, so to speak, of the Institution, and that they have a right to ask for a man competent to carry on Dr. Stearns' splendid work and push it higher and faster as the demands of the time require. It is a duty, and therefore pardonable, if the Committee is emphatic upon this point.

One other consideration claims attention. It appears, as far as could be ascertained, that no effort was made on the part of your Board to obtain, or to investigate the claim of any Connecticut physician for this appointment. While the Committee of the State Medical Society does not believe any slight was intended, yet, it is easy to see, that some justification for such feeling might

exist. It would seem that the development of a sentiment of this character would be carefully avoided. The Committee would welcome the acquisition of the best man from any source; but it feels well within its rights to say that, if it is necessary to go outside the State for a capable and satisfactory man, you should present a nominee of most exceptional ability, one about whom no question can be raised as to his fitness in each and every particular.

As your charter and experience may testify, the Connecticut Medical Society has always had a most friendly and commendable interest in the welfare of the Retreat. Its success and high standard has been and is to-day, a source of great pride. It is with such feeling and the supreme desire to help and co-operate with you that the Society's present Committee expresses the hope that your Honorable Board may not consider its action unreasonable in asking you to reconsider the nomination you have made.

Very respectfully yours,

HENRY L. SWAIN, Chairman,

FRANK K. HALLOCK, Secretary,

Committee to Nominate Physician to the Retreat.

In due course of time, much more promptly we must acknowledge than it was possible for your Committee to always act, we received in reply to our note the following letter:

Hartford, Conn., Aug. 9th, 1904.

To the Committee of the State Medical Society for the
Nomination of a Physician for the Retreat for the
Insane.

Gentlemen:

We beg to acknowledge receipt of your communication of July 29th and to thank you for the interest you evince in the very important matter which is the subject of consideration by yourselves and the Directors of the Retreat.

We are especially gratified that you appreciate the great responsibility which rests upon us in the choice of a man to take charge of the Institution with which some of us have been connected for many years, and in which we are all profoundly interested. There can be no difference of opinion between your Committee and our Board as to the necessity of having a man not only of executive ability, but also with as thorough a knowledge as possible of the best methods for treating what you very truly call the "most difficult, obscure and serious of human afflictions."

In securing a successor to Dr. Stearns we considered not only the fact that we hold in trust a very large property, but also a still more important trust in an institution which has in the past been of very great service to humanity, and is destined in the future to be of still more value if it is wisely and intelligently managed.

In looking back at the meeting of July 12th, it now seems to those who represented the Retreat that they may have failed to convey to you as fully as might have been done the reasons for the nomination which they made, and we now wish to add that Dr. Thompson's qualifications as a physician in charge of an institution for the insane were thoroughly investigated, and moreover that others who might perhaps have been considered available, residing not only out of the State but in it, were considered with sufficient care to convince us that Dr. Thompson was on the whole the best available man to whom we could commit this most important trust. We are convinced that his business and professional qualifications are such as to enable him to not only continue to carry on the work of Dr. Stearns, of which you show a thorough appreciation, but also that he has the broad ability to introduce into the institution from time to time such improvements as the advance in the knowledge of this particular subject make it desirable to adopt.

We have been glad to comply with your request to

reconsider this nomination, and after further thought we are gratified to be able to say to you that, in view of the responsibilities which rest upon you, we again advise you that we regard Dr. Thompson as the best man we have been able to learn of for this position.

It would have been agreeable to us if some one residing in this State and a member of its medical society had seemed to us thoroughly suitable, but we did not believe that our duty would justify us in letting the present residence of any one outweigh all other considerations.

GURDON W. RUSSELL, *Pres.*

This letter, as you will perceive, left no doubt in our minds whatsoever that notwithstanding certain evidences which had been presented to the members aside from the letter which your Committee sent to all the Directors, that there were other candidates in the field, I say left no doubt in our minds that the members of the Board of Directors of the Retreat were prepared to abide by their decision through thick and thin and would not be coerced into changing their position by any action of our Committee.

At this juncture it may be wise to interpolate that the Committee of the Board of Directors of the Retreat for the Insane, acting perfectly within their rights, had gotten so far in their relations with Dr. Thompson as to have intimated to him that it was their wish that he become the successor of Dr. Stearns, and to ask him whether if he should receive a formal call he would accept, and so positive were they, that it was inserted in the Hartford papers that he was already elected and was to be the successor of Dr. Stearns, all this before your Committee had in any way received any official intimation that there was any vacancy existing in the superintendency of the Retreat. This statement is introduced here because it could not fail to color all the deliberations of your Committee as they attempted to decide what their duty was first by our Society and second by the Direc-

tors of the Retreat, who evidently had taken every possible means to ascertain the qualifications of Dr. Thompson and to be sure that he would be a satisfactory man to them.

You will notice that in the reply which was received from Dr. Russell to our first letter, wherein he expressed a feeling that perhaps the medical qualifications of Dr. Thompson had not been sufficiently dwelt upon in their statements to us on the occasion of our first meeting in Hartford, no attempt was made to introduce new evidence.

Your Committee as reasonable men canvassed the situation as much as it was possible for them to do, and could find no evidence existing anywhere that Dr. Thompson had ever done anything of an original nature in the way of scientific investigation of the diseases of the mind and nervous system, and while he had very acceptably, we acknowledge with great alacrity, done his work as assistant and at times acting superintendent, it has simply appeared to be the usual work demanded of a good officer and nothing more.

The Committee had a meeting the latter part of August, finding it difficult to get together at that time, and thoroughly discussed the situation. We desired more light before we took another step. We discussed whether or not it were advisable to call a special meeting of the Society for instructions. We felt that at that time and during the entire month of September it would not be possible to get together a representative gathering, and that we would not get that general expression of opinion which it seemed to us the occasion required. We had received from the Litchfield County Society definite indication that they unqualifiedly endorsed the name of another gentleman than Dr. Thompson as Dr. Stearns' successor. Inasmuch as this represented a conspicuous number of the State Society, and it had been voted by the Litchfield County Society to urge such action upon the other County Societies, official notice to

this effect having been sent to Dr. Wordin, your Secretary, it seemed that perhaps your Committee could come into the possession of the wishes of the Society by a somewhat less troublesome and expensive method of obtaining that opinion than that which would otherwise have to be, namely, a special meeting of the Society. With a desire to receive such instruction before taking any step further in the matter, your Committee felt compelled to wait until the latter part of September before sending in a reply to Dr. Russell's letter of August 9th, and had, in fact, framed a suitable response which would have included in it a recommendation of the gentleman whom it as a committee felt would certainly combine all the elements of an able superintendent, when, a communication was received by the secretary of the Committee from Dr. Russell, stating that Dr. Stearns had withdrawn his resignation. Following this letter a reply was sent by our secretary as follows:

Cromwell, Conn., Oct. 17, 1904.

Gordon W. Russell, M.D.,

President Board of Directors, Hartford Retreat.

Dear Sir:

The Committee of the Connecticut Medical Society to nominate a physician to the Hartford Retreat desires to thank you for your courteous communication of August 2, 1904. We can only regret that your kindly acquiescence to our request, as expressed in our letter of July 30, 1904, resulted in so little relief from the position in which we found ourselves, viz., not fully concurring in the choice you had made for a successor to Dr. Stearns. A further statement of our position was forthcoming when your letter of October 6th was received. This will not now be necessary, as the withdrawal of Dr. Stearns' resignation relieves our Committee of further action.

Very respectfully yours,

FRANK K. HALLOCK, Secretary.

This terminates your Committee's work up to the present date, and leaves the matter in statu quo.

While your Committee regrets that the letter, which I will take the liberty of reading as an addendum to this report, was not sent in before the resignation of Dr. Stearns was withdrawn, it still feels that it has acted in a conservative way to have delayed the letter until some expression of opinion on the part of the profession in the State should have so given direction to its reply as to ensure that any action which it took as a committee coincided with an expressed wish of the majority of the profession in the State.

We beg leave to submit the above with our respects, and sign ourselves.

For the Committee to Nominate a Physician to the Hartford Retreat for the Insane,

HENRY L. SWAIN, Chairman,

FRANK K. HALLOCK, Secretary.

THE VERMONT STATE MEDICAL SOCIETY.

Report of the
Ninety-First Annual Meeting held at Rutland, Vermont,
October 13 and 14, 1904.

President W. N. Bryant, president. There was an unusually large attendance. The business was all referred to the House of Delegates, which left the time for the reading and discussing of the papers, which were of a high order and showed much original scientific work.

Dr. Henry D. Holton, Secretary of the Vermont State Board of Health, gave a report of the meeting of the American Medical Association at Atlantic City, and urged that as many of the profession as possible should attend the meetings every year. He spoke enthusiastically of the benefits derived from the attending these meetings.

The Experimental Study of the Movements Produced in the Stomach and Bowels by Electricity, a paper read by Dr. G. G. Marshall, was very favorably received and fully discussed. He had made a very creditable scientific investigation of the subject.

The paper on the diseases of children by Dr. D. C. Hawley. He said that so many foods are now manufactured and sold on the market that the doctors did not know their business. Dr. Jackson of Barre, in discussing this paper, insisted on the advisability of protecting the children under five years of age from contagious diseases, as a means of reducing the infant death-rate.

The paper on articular rheumatism, by Dr. Cabot, showed his thorough knowledge of the subject and his results were excellent.

The interest of the meeting centered very much in the excellent paper read by Dr. John C. Monroe of Boston, on the Surgery of the Stomach. It was well received

and thoroughly discussed. Like all surgical subjects it is a cutting interest.

The evening session was mostly devoted to the reading of the President's Annual Address, on Epidemic influenza as an etiological factor in pulmonary and other diseases. His paper was illustrated by charts showing the sudden increase in the death-rate of pneumonia in the year 1892, the year of the first appearance of the influenza and has remained higher since than it was previous to this year.

All told the Vermont doctors represent a fine type of men, simple and plain, but endowed with good common sense, capable of thinking and investigating logically. The state meeting is made a grand professional holiday. They bring their wives and daughters with them and the banquet in the evening, which lasted until two o'clock in the morning, was made an interesting social event.

M. M. JOHNSON, Delegate.

NEW YORK STATE MEDICAL ASSOCIATION.

REPORT OF DELEGATE.

To the Connecticut Medical Society:

Mr. President and Gentlemen: As chairman of the delegation sent to the New York State Medical Association I make the following report:

I was there during two days of their meeting, and was most splendidly entertained, both medically and socially. I was the guest of Dr. F. H. Wiggin, and met at dinner the President of the Association, Dr. W. H. Thornton, of Buffalo, and the newly elected president for next year, Dr. J. Riddle Goffe, of New York City, also Dr. Wisner R. Townsend and Dr. Alexander Lambert, both of New York City.

On the second day of the session I heard some very able papers and discussions. A very thoughtful paper by Dr. Jack, of Buffalo was on the subject of Asthma, in which the writer traced the cause many times to blood toxemia, he not believing that climate or dust had as much to do with asthma as has been thought.

Another paper, by Dr. A. H. Golet, of New York City, on the frequent and often undiagnosed condition of floating kidney causing various gynecological symptoms was very instructive, and with the relation of his cases made the cause very positive.

Dr. R. C. Kemp, of New York City, demonstrated a new method of transillumination of the stomach, which is an improvement on any device that I have previously seen.

When the delegates were called upon, I being the only member of the Connecticut delegation present, had the pleasure of extending to the New York convention Connecticut's greetings.

In place of the usual state dinner a theatre party was inaugurated this year which was enjoyed by everyone.

Through complications in the laws of the State of New York the amalgamation of the New York Medical Association and the New York State Society must be inevitably postponed for a year until necessary legislation has been obtained. This is unfortunate, but apparently unavoidable.

As, as far as I know, I was the only delegate from Connecticut present, I am compelled to sign this report alone.

OLIVER T. OSBORNE,

Chairman of Delegation.

RESOLUTION CONCERNING VACCINATION

ADOPTED AT THURSDAY'S SESSION, MAY TWENTY-FIVE*

Resolved: That a committee of three be appointed by the President to prepare a paper for distribution to the profession of the State, showing the necessity of vaccination in preventing small-pox. The object being to give them data easy of access to use in combatting the attempts of ignorant or mischievous persons to repeal the statutory laws at present in force compelling the performance of vaccination in suitable cases.

*The composition of Congress here see page 55.

GEORGE WHITING BURKE, M.D., MIDDLETOWN.

JOHN ELMORE BARKY, M.D.,

MIDDLETOWN.

George Whiting Burke, M.A., M.D., died at his residence on College Street, Middletown, June fourth, 1901, in the eighty-third year of his age. He had been feeble for some time, and for several months had been confined to his house, when an acute attack of enteritis of only four days duration caused his death.

It was always a pleasure to meet Dr. Burke in consultation, for he was an exceptionally good diagnostician, seldom arriving at an unwise decision, and his thorough knowledge of practical therapeutics was of great help. He was well acquainted with the different views of many of our best students, and could quote with surprising accuracy from many of them. He believed in medicating his patients very lightly, and was thoroughly disgusted with "shot-gun prescribing." He was a true believer in elegant pharmaceutical preparations, and has spent hours in trying to disguise the nauseous tastes and obnoxious appearances of many drugs, his success being quite marvelous in many instances. Burke's Bark Mixture is a good example, and is prescribed here frequently. His prescriptions were remarkable for their simplicity, neatness and beauty, looking almost like copy-plate, so nicely were they written. He would never ask the druggist to mix incompatibles or antagonizing drugs. He kept a record of his patients for nearly fifty years. He was very thorough in whatever he undertook. He may well be called the father of the Central Medical Society. Dr. Burke was himself a picture of neatness and cleanliness, teaching many years before the days of antisepsism the absolute necessity of cleanliness both in the sick and operating room. In all our dealings with him we

were impressed with his courtly manners and many Christian graces. We miss him in the consultation room, and in our Societies.

Among the citizens of Middletown, who have been prominently identified with its public and social life for many years, is George Whiting Burke, who was born at New Haven, June twenty-seventh, 1821, son of Joseph C. and Jane E. Burke. In 1823 his parents removed to Middletown, where they remained until 1837, when a Government appointment for Mr. Burke made it necessary for the residence of the family to be in Hartford, and they removed to that city.

In 1835 Dr. Burke entered Wesleyan University from which he graduated in 1839 with the degree of B. A. He then engaged in teaching school in Hartford and in the State of New York, returning in 1841 to Connecticut to study medicine under Dr. Beigham, who was then Superintendent of the Retreat for the Insane. In 1842 he received the degree of M. A. from the University, and the same year was appointed Assistant at the Retreat, in 1843 receiving the degree of M. D. from Yale, from which latter date he followed the practice of his profession.

In May, 1844, Dr. Burke married Ann Parish Benjamin, step-daughter of Oliver Parish, who died in 1863. In May, 1865, he married Jane E. Tobey, daughter of Joseph Tobey.

In August, 1843, Dr. Burke began the practice of medicine in Palmer, Mass., continuing for about nine years, when the demands of a growing family, and the invitation of friends at his old home, induced him to return to Middletown, where he resided until his death.

From the time he attained his majority in 1842, following the example of his father, the Doctor affiliated with the Democratic party until April, 1861, when the attack on Sumter changed his views. The first opportunity for action with the Republican party came in the fall town election when with many others of Democratic-

preclivities he voted the Republican ticket, which was elected by a large majority in a town which for years previous had been strongly Democratic.

From 1861 for at least twenty-five years, Dr. Burke and the Hon. B. Best, had charge of Districts 1 and 2, and managed the political work. For several years prior to the Civil War, by appointment from Col. Starr, Dr. Burke had acted as Surgeon to the Sixth Connecticut State Regiment, and in September, 1862, when the Twenty-fourth Regiment, Connecticut Volunteers, was formed and recruited at Middletown for the seventy-five days, during which the regiment encamped at Fort Hill, Dr. Burke examined every member. Near the close of this period Governor Buckingham appointed him Surgeon, but this honor came at a time when his wife was critically ill, and he declined the appointment. Election to the various offices which the Doctor afterward efficiently filled, show the esteem in which he was held by the public.

For more than twenty years prior to 1887, Dr. Burke represented for Middletown and the adjacent county, the Travelers' Insurance Co. of Hartford, acting both as agent and Medical Examiner, this connection being dissolved on account of failing health. His first appointment of Medical Examiner was from the Connecticut Mutual Life Company in 1876, for Palmer, Mass.; later for Middletown, and subsequently he received without solicitation the same appointment from the John Hancock Insurance Company of Boston, the Haver Life, of Brooklyn, N. Y., The Charter Oak of Hartford, and the Metropolitan of New York.

During the forty-eight years of his residence in Middletown, Dr. Burke was chosen and filled most efficiently the following offices: School Visitor, Town Treasurer, Town Assessor, Town Clerk, and Registrar of Vital Statistics, Alderman and Assessor for the city, Clerk for the Board of Education from 1858 to 1878, and special Deputy Collector of Customs and Disbursing Agent for

the District of Middletown, embracing the country from Springfield and Holyoke, Mass., to Clinton, Conn., from 1860 to 1887, at which latter date the office was removed to Hartford. During some of the latter years of this period the annual collections and deposits of Customs exceeded \$200,000 and this was only one part of the business which embraced the measurement of vessels, marine hospital service, steamboat inspection, warehousing account, and the care and custody of public buildings.

In February, 1841, Dr. Burke united with the M. E. Church at Hartford, and since his location in Middletown in 1852, he has been an active member of the First Methodist Church, filling the various offices of Superintending of Missions, Steward, Trustee and Treasurer. In this time have occurred the purchase of additional land and the erection of a brick parsonage, lecture-room, and since a fire in 1885, the building of the present large church and chapel, which are clear of debt. Aside from much valuable writing and revision in connection with his church duties, Dr. Burke has been a frequent contributor to the Daily and Medical Press, and has been a member of the Connecticut State Medical Society; of the Middlesex County Medical Association; and of the Central Medical Association for the past forty-eight years, during the greater part of which period he has acted as Secretary and Treasurer of the last named. For a long period he was Reporter and regular correspondent for a Hartford daily, and in 1888 wrote a series of thirteen articles, sketches of various interests in Middletown of sixty years ago.

The chief recreation which Dr. Burke enjoyed was found in gardening, cultivating fruits and flowers, this occupation having acted most favorably on his health which had become much impaired.

The prominent part he took in almost all phases of the public life of Middletown, entitled him to rank as one of her most highly esteemed and representative citizens.

RESOLUTION

AMENDING THE CHARTER OF THE CONNECTICUT MEDICAL SOCIETY.

GENERAL ASSEMBLY,

JANUARY SESSION, A.D. 1905.

Resolved by this Assembly:

Section 1. That the charter of The Connecticut Medical Society, approved June 5, 1834, and as the same has been amended from time to time, be and the same is hereby amended so as to read as follows:

That all persons who are now members of The Connecticut Medical Society and all physicians and surgeons who shall hereafter be associated with them in pursuance of the provisions of this resolution shall be and remain a body politic and corporate by the name of The Connecticut State Medical Society; and by that name they and their successors shall and may have perpetual succession; shall be capable of suing and being sued, pleading and being impleaded in all suits of whatever name and nature; may have a common seal and may alter the same at pleasure; and may also purchase, receive, hold, and convey any estate, real or personal, to an amount not exceeding one hundred thousand dollars.

Sec. 2. The superintendence and management of the corporation shall be vested in a board to be known and called by the name of The House of Delegates of The Connecticut State Medical Society, which board shall have power to establish offices in said corporation and prescribe the duties of the several officers and of the members of said corporation, and may fix their compensation; to establish the conditions of admission to and dismission and expulsion from said society; to lay a tax from time to time upon the members, not exceeding five dollars in each year and to collect the same; to hold and dispose of all moneys and other property belonging to the corporation in such manner as they may

deem proper to promote the objects and interests of the society; and in general to make such bylaws and regulations for the due government of the society, not repugnant to the laws of the United States or of this state as may be deemed necessary.

Sec. 3. The House of Delegates of The Connecticut State Medical Society shall be composed of, (1) *ex-officio*, the president and secretary of the society; (2) delegates to be elected annually as hereinafter provided, by the several county medical associations in this state which heretofore have been and now are affiliated with The Connecticut Medical Society; and (3) eight councilors to be elected from time to time as hereinafter provided.

Sec. 4. An annual meeting of the corporation for the election of officers and such other business as may from time to time arise, shall be held during the month of May in each year and upon such day in said month as the house of delegates shall from time to time prescribe.

Sec. 5. At a meeting to be held at least twenty days in advance of the annual meeting of the corporation in each year, every affiliated county association shall elect a delegate or delegates to represent it in the house of delegates of this society in the proportion of one delegate to each thirty-five members, or any part of that number, and the secretary of such affiliated county association shall send a list of such delegates to the secretary of this corporation at least twenty days before the date of said annual meeting.

Sec. 6. The first councilors shall be appointed by the president, one from each county, who shall serve for one year or until their successors shall be elected. At their annual meeting in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield and Tolland counties shall serve for two years; and at the expiration of the term of office of the councilors so elected, each

affiliated county medical association shall, biennially thereafter, elect a councillor, who shall serve for two years.

Sec. 7. The secretary of every affiliated county medical association in this state shall, in May, 1905, and annually thereafter, at least ten days before the annual meeting of the society, file with its secretary a list of all members of said respective county associations who are at the time in good and regular standing, and thereupon all such persons shall become and be members of The Connecticut State Medical Society without further action.

THE CONNECTICUT STATE MEDICAL SOCIETY.

BY-LAWS.

CHAPTER I.

Section 1. Name. The name and title of this organization shall be the Connecticut State Medical Society.

Sec. 2. Purposes of the Society. The purposes of this Society shall be to federate and bring into one compact organization the entire medical profession of the State of Connecticut, and to unite with similar societies of other States to form the American Medical Association; to extend medical knowledge and advance medical science; to elevate the standard of medical education, and to secure the enactment and enforcement of just medical laws; to promote friendly intercourse among physicians; to guard and foster the material interests of its members and to protect them against imposition; and to enlighten and direct public opinion in regard to the great problems of State medicine, so that the profession shall become more capable and honorable within itself, and more useful to the public, in the prevention and cure of disease, and in prolonging and adding comfort to life.

Sec. 3. **Component Associations.** Component Associations shall consist of those county medical associations which heretofore have been and now are affiliated with the Connecticut Medical Society.

Sec. 4. **Composition of Society.** This Society shall consist of members, delegates, guests, and honorary members.

Sec. 5. **Members.** Members of this Society shall be the members of the component county medical associations.

Sec. 6. **Delegates.** Delegates shall be those members who are elected in accordance with the charter and by-laws to represent their respective component associations in the house of delegates of this Society.

Sec. 7. **Guests.** Any distinguished physician not a resident of this State who is a member of his own State Association may become a guest during any Annual Session on invitation of the officers of this Society and shall be accorded the privilege of participating in all the scientific work for that Session.

Sec. 8. **Honorary Members.** Eminent physicians, not residents of this State, may be elected Honorary Members by a major vote of the House of Delegates after nomination of one year, but such shall not exceed three in any one year.

Honorary Members shall have all the privileges accorded by Section 7 to Guests.

CHAPTER II.—MEMBERSHIP.

Section 1. The name of a physician on the properly certified roster of members of a component association, who has paid his annual assessment, shall be prima facie evidence of membership in this Society.

Sec. 2. Any person who is under sentence of suspension or expulsion from a component association, or whose name has been dropped from his roll of members, shall not be entitled to any of the rights or benefits of this

Society, nor shall he be permitted to take part in any of its proceedings until he has been relieved of such disability.

Sec. 3. Each member in attendance at the Annual Session shall enter his name on the registration book, indicating the component association of which he is a member.

CHAPTER III.—HOUSE OF DELEGATES.

Section 1. The House of Delegates shall be the legislative and business body of the Society, and shall consist of (1) delegates elected by the component county associations; (2), the Councilors; and (3) *ex-officio*, the President and Secretary of this Society.

Sec. 2. The House of Delegates shall meet on the first day of the annual session. It may adjourn from time to time as may be necessary to complete its business, provided that its hours shall conflict as little as possible with the General Meetings. The order of business shall be arranged as a separate section of the programme.

Sec. 3. Each component association shall be entitled to send to the House of Delegates each year, one delegate for every 35 members, or any part of that number.

Sec. 4. Fifteen delegates shall constitute a quorum.

Sec. 5. It shall, through its officers, Council and otherwise, give diligent attention to and foster the scientific work and spirit of the Society, and shall constantly strive to make each Annual Session a stepping-stone to further advancement.

Sec. 6. It shall consider and advise as to the material interests of the profession, and of the public in those important matters wherein it is dependent upon the profession, and shall use its influence to secure and enforce all proper medical and public-health legislation, and to diffuse popular information in relation thereto.

Sec. 7. It shall make careful inquiry into the con-

dition of the profession of each county in the State, and shall have authority to adopt such methods as may be deemed most efficient for building up and increasing the interest in such county associations as already exist, and for organizing the profession in counties where associations do not exist. It shall especially and systematically endeavor to promote friendly intercourse among physicians of the same locality, and shall continue these efforts until every physician in every county of the State who can be made reputable has been brought under medical society influence.

Sec. 8. It shall encourage post-graduate and research work, as well as home study, and shall endeavor to have the results discussed and utilized.

Sec. 9. It shall elect representatives to the House of Delegates of the American Medical Association in accordance with the Constitution and By-Laws of that body.

Sec. 10. It shall have authority to appoint committees for special purposes from among members of the Society who are not members of the House of Delegates.

Such committees shall report to the House of Delegates, and may be present and participate in the debate on their reports.

Sec. 11. It shall approve all memorials and resolutions issued in the name of the Society before the same shall become effective.

Sec. 12. Sections and District Societies. The House of Delegates may provide for a division of the scientific work of the Society into appropriate sections, and for the organization of such Councilor District Associations as will promote the best interests of the profession, such associations to be composed exclusively of members of component county associations.

CHAPTER IV.—SESSIONS AND MEETINGS.

Section 1. The Society shall hold an annual session during which there shall be held daily General Meetings

which shall be open to all registered members, guests and honorary members.

Sec. 2. The time and place for holding each annual session shall be fixed by the House of Delegates.

Sec. 3. Special meetings of either the Society or the House of Delegates shall be called by the President, on petition of ten (10) delegates or fifty (50) members.

Sec. 4. General Meetings. All registered members may attend and participate in the proceedings and discussions of the General Meetings and of the Sections. The General Meetings shall be presided over by the President or by one of the Vice-Presidents, and before them shall be delivered the address of the President and the orations.

Sec. 5. The General Meeting may recommend to the House of Delegates the appointment of committees or commissions for scientific investigation of special interest and importance to the profession and the public.

CHAPTER V.—OFFICERS.

Section 1. The officers of this Society shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and eight Councilors.

Sec. 2. The officers, except the Councilors, shall be elected annually. The first councilors shall be appointed by the President, one from each county, who shall serve for one year, or until their successors shall be elected. At their annual meetings in the year 1906, each affiliated county medical association shall elect one councilor, of whom those elected in Hartford, New London, Windham and Middlesex counties shall serve for one year, and those elected in New Haven, Fairfield, Litchfield and Tolland counties shall serve for two years, and at the expiration of the term of office of the councilors so elected, each affiliated county medical association shall, biennially, elect a councilor, who shall serve for two years.

Sec. 3. All elections shall be by ballot and a majority of the votes cast shall be necessary to elect.

Sec. 4. The election of officers shall be the first order of business of the House of Delegates after the reading of the minutes on the morning of the last day of the General Session, but no delegate shall be eligible to any office named in the preceding section, except that of councillor, and no person shall be elected to any such office who has not been a member of the Society for the past two years.

CHAPTER VI.—DUTIES OF OFFICERS.

Section 1. The President shall preside at all meetings of the Society and of the House of Delegates; shall appoint all committees not otherwise provided for; he shall deliver an annual address at such time as may be arranged, and perform such other duties as custom and parliamentary usage may require. He shall be the real head of the profession of the State during his term of office, and, as far as practicable, shall visit by appointment the various sections of the State and assist the Councilors in building up the county associations and in making their work more practical and useful.

Sec. 2. The Vice-Presidents shall assist the President in the discharge of his duties. In the event of the President's death, resignation or removal, the Council shall select one of the Vice-Presidents to succeed him.

Sec. 3. The Treasurer shall give bond in the sum of \$1,000, the manner of bonding to be left to the Council. He shall demand and receive all funds due the Society, together with the bequests and donations. He shall pay money out of the Treasury only on a written order of the President, countersigned by the Secretary; he shall subject his accounts to such examination as the House of Delegates may order, and he shall annually render an account of his doings and of the state of the funds in his hands.

Sec. 4. The Secretary shall attend the General

Meetings of the Society and the meetings of the House of Delegates, and shall keep minutes of their respective proceedings in separate record books. He shall be ex-officio Secretary of the Council. He shall be custodian of all record books and papers belonging to the Society, except such as properly belong to the Treasurer, and shall keep account of and promptly turn over to the Treasurer all funds of the Society which come into his hands. He shall provide for the registration of the members and delegates of the Annual Sessions. He shall, with the co-operation of the secretaries of the component associations, keep a card-index register of all the legal practitioners of the State by counties, noting on each his status in relation to his county association, and, on request, shall transmit a copy of this list to the American Medical Association. He shall aid the Councilors in the organization and improvement of the county associations and in the extension of the power and usefulness of this Society. He shall conduct the official correspondence, notifying members of meetings, officers of their election and committees of their appointment and duties. He shall employ such assistants as may be ordered by the House of Delegates, and shall make an annual report to the House of Delegates. He shall supply each component association with the necessary blanks for making their annual reports. Acting with the Committee on Scientific Work, he shall prepare and issue all programmes. The amount of his salary shall be fixed by the Council.

CHAPTER VII.—COUNCIL.

Section 1. The Council shall consist of one councillor from each county and the President and Secretary ex-officio. It shall be the Finance Committee of the House of Delegates. Five Councilors shall constitute a quorum.

Sec. 2. The Council shall meet daily during the Session, and at such other times as necessity may require.

subject to the call of the chairman or on petition of three Councilors. It shall meet on the last day of the Annual Session of the Society to organize and outline *work* for the ensuing year. It shall elect a chairman and a clerk, who, in the absence of the Secretary of the Society, shall keep a record of its proceedings. It shall through its chairman, make an annual report to the House of Delegates.

Sec. 3. Each Councilor shall be organizer, peace-maker and censor for his district. He shall visit the counties in his district at least once a year for the purpose of organizing component associations where none exists; for inquiring into the condition of the profession, and for improving and increasing the zeal of the county associations and their members. He shall make an annual report of his *work* and of the condition of the profession of each county in his district at the Annual Session of the House of Delegates.

Sec. 4. The Council shall be the Board of Censors of the Society. It shall consider all questions involving the rights and standing of members, whether in relation to other members, to the component associations, or to this Society. All questions of an ethical nature brought before the House of Delegates or the General Meeting shall be referred to the Council without discussion. It shall hear and decide all questions of discipline affecting the conduct of members or component associations on which an appeal is taken from the decision of an individual Councilor, and its decision in all such matters shall be final.

Sec. 5. The Council shall provide for and superintend the publication and distribution of all proceedings, transactions and memoirs of the Society, and shall have authority to appoint an editor and such assistants as it deems necessary. All money received by the Council and its agents, resulting from the discharge of the duties assigned to them, must be paid to the Treasurer of

the Society. As the Finance Committee it shall annually audit the accounts of the Treasurer and Secretary and other agents of this Society and present a statement of the same in its annual report to the House of Delegates, which report shall also specify the character and cost of all the publications of the Society during the year, and the amount of all other property belonging to the Society under its control, with such suggestions as it may deem necessary. In the event of a vacancy in the office of the Secretary or the Treasurer, the Council shall fill the vacancy until the next annual election.

CHAPTER VIII.—COMMITTEES.

Section 1. The standing committees shall be as follows:

A Committee on Scientific Work.

A Committee on Public Policy and Legislation.

A Committee on Arrangement, and such other committees as may be necessary. Such committees shall be elected by the House of Delegates, unless otherwise provided.

Sec. 2. The Committee on Scientific Work shall consist of three members, of which the Secretary shall be one, and shall determine the character and scope of the scientific proceedings of the Society for each session, subject to the instructions of the House of Delegates. Fifteen days previous to each Annual Session it shall prepare and issue a programme announcing the order in which papers, discussions and other business shall be presented.

Sec. 3. The Committee on Public Policy and Legislation shall consist of one member from each component association, and the President and Secretary. Under the direction of the House of Delegates it shall represent the Society in securing and enforcing legislation in the interest of the public health and scientific medicine. It shall keep in touch with professional and public opinion, shall endeavor to shape legislation so as to se-

cure the best results for the whole people and shall strive to organize professional influence so as to promote the general good of the community in local, state and national affairs and elections.

Sec. 4. The Committee of Arrangements shall be appointed by the component association in which the Annual Session is to be held. It shall provide suitable accommodations for the meeting places of the Society and of the House of Delegates, and of their respective committees. Its chairman shall report an outline of the arrangements to the Secretary for publication in the programme, and shall make additional announcements during the session as occasion may require.

CHAPTER IX.—RECIPROCITY OF MEMBERSHIP WITH OTHER STATE SOCIETIES.

In order to broaden professional fellowship this Society is ready to arrange with other State Medical Societies for an interchange of certificates of membership, so that members moving from one State to another may avoid the formality of re-election.

CHAPTER X.—FUNDS AND EXPENSES.

Funds shall be raised by an equal per capita assessment on each component association. The amount of the assessment shall be fixed by the House of Delegates, but shall not exceed the sum of \$3.00 per capita per annum except on a four-fifths vote of the delegates present. Funds may also be raised by voluntary contributions, from the Society's publications, and in any other manner approved by the House of Delegates. Funds may be appropriated by the House of Delegates to defray the expenses of the Society, for publications, and for such other purposes as will promote the welfare of the profession. All resolutions appropriating funds must be referred to the Finance Committee before action is taken thereon.

CHAPTER XI.—REFERENDUM.

Section 1. A General Meeting of the Society may, by a two-thirds vote of the members present, order a general referendum on any question pending before the House of Delegates, and when so ordered the House of Delegates shall submit such question to the members of the Society, who may vote by mail or in person, and if the members voting shall comprise a majority of all the members of the Society, a majority of such vote shall determine the question and be binding on the House of Delegates.

Sec. 2. The House of Delegates may, by a two-thirds vote of its members present submit any question before it to a general referendum, as provided in the preceding section, and the result shall be binding on the House of Delegates.

CHAPTER XII.—COUNTY ASSOCIATIONS.

Section 1. All county associations now in affiliation with the Connecticut Medical Society shall be component parts of this Society.

Sec. 2. Each county association shall judge of the qualification of its own members, but as such associations are the only portals to this Society and to the American Medical Association, every reputable and legally registered physician who does not practice or claim to practice nor lend his support to any exclusive system of medicine, shall be entitled to membership.

Sec. 3. Any physician who may feel aggrieved by the action of the Association of his county in refusing him membership or in suspending or expelling him, shall have the right to appeal to the Council, and its decision shall be final.

Sec. 4. In hearing appeals the Council may admit oral or written evidence as in its judgment will be best and to most fairly present the facts, but in case of every appeal, both as a Board and as individual coun-

citors in district and county work, efforts at conciliation and compromise shall precede all such hearings.

Sec. 5. When a member in good standing in a component association moves to another county in this State, his name on request, shall be transferred, without cost, to the roster of the county into whose jurisdiction he moves.

Sec. 6. A physician living on or near a county line may hold his membership in that county most convenient for him to attend, on permission of the association in whose jurisdiction he resides.

Sec. 7. Each component association shall have general direction of the affairs of the profession in its county, and its influence shall be constantly exerted for bettering the scientific, moral and material condition of every physician in the county; and systematic efforts shall be made by each member, and by the Society as a whole, to increase the membership until it embraces every qualified physician in the county.

Sec. 8. At some meeting in advance of the Annual Session of this Society, each county association shall elect a delegate or delegates to represent it in the House of Delegates of this Society in the proportion of one delegate to each thirty-five members, or any part of that number, and the Secretary of the association shall send a list of such delegates to the Secretary of this Society, at least twenty days before the Annual Session.

Sec. 9. The Secretary of each component association shall keep a roster of its members and of the non-affiliated registered physicians of the county, in which shall be shown the full name, address, college and date of graduation, date of registration in this State and such other information as may be deemed necessary. In keeping such roster the Secretary shall note any changes in the personnel of the profession by death, or by removal to or from the county, and in making his annual report he

shall be certain to account for every physician who has lived in the county during the year.

Sec. 16. The Secretary of each component association shall forward its assessment to the Treasurer at least ten days before the Annual Session and its roster of officers and list of non-affiliated physicians of the county to the Secretary of this Society each year twenty days before the Annual Session.

CHAPTER XIII.—MISCELLANEOUS.

Section 1. No address or paper before this Society, except those of the President and orators, shall occupy more than twenty minutes in its delivery; and no member shall speak longer than five minutes, nor more than once on any subject except by unanimous consent.

Sec. 2. All papers read before the Society or any of the Sections shall become its property. Each paper shall be deposited with the Secretary when read. No paper shall be read before this Society which has been previously published or read before any other organization.

Sec. 3. The deliberations of this Society shall be governed by parliamentary usage as contained in Roberts' Rules of Order, when not in conflict with the Charter and By-Laws.

Sec. 4. The Principles of Medical Ethics of the American Medical Association shall govern the conduct of members in their relations to each other and to the public.

CHAPTER XIV.—AMENDMENTS.

These By-Laws may be amended at any Annual Session by a majority vote of all the delegates present at that session, after the amendment has been laid on the table for one day.

MEMBERS OF THE SOCIETY.

HONORARY MEMBERS.

ADRIAN THEO. WOODWARD,	Brandon, Vt.
WILLIAM McCOLLUM,	Brooklyn, N. Y.
AGRIPTA NELSON BELL,	Brooklyn, N. Y.
JOHN SHAW BILLINGS, U. S. A.,	New York City.
THOMAS ADDIS EMMETT,	New York City.
WILLIAM HENRY WELCH,	Baltimore, Md.
ROBERT FULTON WEIR,	New York City.
SIR JOSEPH LISTER,	London, Eng.
EDWARD G. JANEWAY,	New York City.
HON CHARLES E. GROSS,	Hartford.
DAVID WEBSTER,	New York City.
SIR JAMES GRANT,	Ottawa, Can.
HENRY O. MARCY,	Boston, Mass.
T. MITCHELL PRUDDEN,	New York City.
WILLIAM W. KEEN,	Philadelphia, Pa.
JAMES W. McLANE,	New York City.
FREDERICK HOLME WIGGIN,	New York City.
SENECA D. POWELL,	New York City.
J. W. S. GOULEY,	New York City.
REYNOLD WEBB WILCOX,	New York City.
WILLIAM OSLER,	Oxford, England.
GEORGE M. STERNBERG,	Washington.
FRANCIS DELAFIELD,	New York City.

ACTIVE MEMBERS.

The names of those who have been Presidents are in capitals.

HARTFORD COUNTY.

THEODORE O. WRIGHT, M.D., New Britain, *President.*

Gustavus P. Davis, M.D., Hartford, *Vice President.*

Edward B. Lampson, M.D., Hartford, *Clerk.*

County Reporter—Kenneth E. Kellogg, M.D., New Britain.

Committee—Robert M. Clark, M.D., Oliver C. Smith, M.D.,

Thomas F. Kane, M.D.

Annual Meeting First Tuesday in April Semi-Annual Meeting

Third Wednesday in October.

Hartford:

GURDON W. RUSSELL, No. 281 Farmington Avenue.

HENRY P. STEARN, No. 138 Retreat Avenue.

Horace S. Fuller, No. 93 Trumbull Street.

Nathan Meyer, No. 304 Main Street.

David Crary, No. 314 Main Street.

John B. Lewis, No. 54 Prospect Street.

David T. Bromley, No. 121 Pearl Street.

Gustavus P. Davis, No. 58 Prospect Street.

Charles K. Fyfe, No. 142 Pratt Street.

Harmon G. Howe, No. 122 High Street.

William T. Bacon, No. 75 Pratt Street.

William H. Knight, No. 56 Townsend Street.

Thomas D. Childers, No. 14 Fairfield Avenue.

George L. Barnard, No. 40 Pratt Street.

Ellen H. Gaudin, No. 160 Asylum Avenue.

SAMUEL H. ST. JOHN, No. 55 Pratt Street.

George R. Shepherd, No. 12 Farmington Avenue.

Frederick S. Crossfield, No. 75 Pratt Street.

Margus M. Johnson, No. 172 Woodland Street.

William D. Morgan, No. 45 Pearl Street.

John F. Antille, No. 475 Main Street.

George K. Welch, No. 163 Pratt Street.

Samson H. Ingalls, No. 112 High Street.

Edward K. East, No. 19 Pearl Street.

Luther J. Dinslow, No. 11 Pratt Street.

John Howard, No. 115 Trumbull Street.

Charles D. Allen, No. 54 Farmington Avenue.

Oliver C. Smith, No. 11 High Street.

Joseph E. Root, No. 87 Pearl Street.

William Porter, Jr., No. 115 Allen Street.

Frederick T. Simpson, No. 122 High Street.

George H. Miller, No. 51 Church Street.

Charles C. Busch, No. 18 Trumbull Street.

Edison C. Seger, No. 67 Farmington Avenue.

George C. Bailey, No. 45 Church Street.

Alva E. Abrams, No. 55 High Street.

Charles E. Tall, No. 55 High Street.

Thomas F. Kane, No. 317 Main Street.

Arthur J. Wight, No. 1 Spring Street.

Annet G. Cook, No. 125 Allen Street.

Edwin A. Davis, No. 2 State Street.
 Daniel P. Sullivan, No. 54 Church Street.
 Joseph H. Cahill, No. 1145 Main Street.
 Kenneth J. McKnight, No. 118 High Street.
 Benjamin S. Barrows, No. 75 High Street.
 Michael A. Bailey, No. 418 Main Street.
 George N. Bell, No. 44 High Street.
 Frank L. Wynn, No. 68 Pratt Street.
 Oliver K. Olson, No. 213 High Street.
 Franklin L. Lawton, No. 235 Main Street.
 John H. Rose, No. 71 Pratt Street.
 John D. Waters, No. 191 Trumbull Street.
 Joseph B. Hall, No. 73 Pratt Street.
 Edward A. Kline, No. 412 Park Street.
 Janet M. Weir, No. 282 Sigourney Street.
 John P. Dunning, No. 1244 Main Street.
 Philip D. Hodge, No. 98 High Street.
 Horace L. Law, No. 199 Washington Street.
 Winsor E. Dickerman, No. 51 Trumbull Street.
 John E. Deucher, No. 25 Charter Oak Avenue.
 Leet R. Cochran, No. 43 Farmington Avenue.
 James H. Naylor, No. 287 Main Street.
 Charles P. Hatfield, No. 1591 Main Street.
 James H. Blandish, No. 319 Windsor Avenue.
 Michael H. Gill, No. 16 Pearl Street.
 John B. McCook, No. 334 Main Street.
 John W. Feltz, No. 5 Whitney Avenue.
 George E. Stepper, No. 1222 Main Street.
 Frank D. Lock, No. 184 Church Street.
 Frank S. Snow, 1195 Boston.
 Herbert F. Smith, No. 214 Main Street.
 Thomas W. Chester, No. 118 High Street.
 Joseph A. Kilbourn, No. 751 Park Street.
 Philip P. Carlin, No. 245 Franklin Avenue.
 William C. Craig, No. 75 Pratt Street.
 Thomas H. Roberts, No. 1 Highland Street.
 Charles A. Goodrich, No. 5 Harvey Street.
 Alfred M. Rowley, No. 750 Main Street.
 Irving Del. Blanchard, No. 72 Widdell Avenue.
 Emil G. Belmont, No. 18 Lewis Street.
 Arthur D. Hayes, No. 17 High Street.
 Herbert A. Tyler, Jr., No. 441 Main Street.
 Frederick L. McKee, No. 162 Ashley Street.
 Edward B. Langdon, No. 52 Trumbull Street.
 William M. Weaver, No. 115 Edwards Street.
 E. Terry Smith, No. 75 Pratt Street.
 William H. Fitzgerald, No. 384 Main Street.
 Emma J. Thompson, No. 105 Trumbull Street.
 Patrick J. Ryan, No. 518 Park Street.
 Walter R. Richter, No. 4 Trinity Street.
 Ellen P. O'Flaherty, No. 494 Main Street.
 Thomas A. Mulcahey, No. 212 Park Street.
 Marian W. Williams, No. 112 Arden Street.
 Allen H. Williams, No. 722 Axolton Street.
 C. Webster Beaumont, No. 2 Garden Street.
 Eckler B. Jones, No. 179 Allen Street.
 Ernest A. Wells, No. 904 Main Street.
 William H. Van Strander, No. 77 Church Street.
 James W. Conklin, No. 51 Pratt Street.
 John L. North, No. 177 Trumbull Street.
 James M. Keniston, No. 79 Hudson Street.
 Orla R. Witter, No. 18 High Street.
 Michael E. Loftis, No. 4 Maple Avenue.
 Frederick Duell Winard, No. 117 High Street.
 Francis Arthur Russell, No. 1215 Main Street.

Henry Ely Adams, No. 108 Church Street.
 Wm. H. Elliott May, No. 54 Prospect Street.
 William T. Greene, No. 291 Capital Avenue.
 John C. Pierson, Highland Court.
 Charles Fingert, No. 384 Main Street.
 Henry F. Stoll, No. 117 Albany Avenue.

Berlin:

Robert S. Knight.
 Charles A. Gillin.

East Berlin:

George W. Lawrence.

Bethel:

William W. Horton.
 Arthur S. Brackett.
 William M. Curtis.
 Henry A. Carrington.

Canter—Collierville:

George P. Lewis.
 William H. Crowley.
 Paul Plummer.

East Hartford:

Thomas S. O'Donnell.
 Walter G. Murphy.
 John E. Griswold.

Hartford:

Franklin H. Mayberry.

East Windsor—Broad Brook:

Howard D. Allen.
 Harold S. Backus.

Windsor Point:

Michael J. Kelly.
 George E. Porter.

Stafford—Thompsonville:

Edward P. Parsons.
 George T. Finch.
 Henry G. Varso.
 Thomas F. Beardon.
 Michael J. Dard.

Stamford:

Simon W. Houghton.

Granby:

Rollie D. Chatfield.

Farmington:

Franklin Wheeler.
 Charles Carrington.

Gloucester:

Charles G. Rankin.
 William S. Kingsbury.

South Gloucester:

Henry M. Kwing.
 Harry B. Ring.

Manchester:

Francis H. Wilson.
 Cabot Webster.

East Manchester:

Thomas D. Stone.

South Manchester:

William R. Taylor.
 Thomas H. Weldon.
 William S. Williams.

New Britain:

George Clark.
 Edwin B. Lyon.
 Jay S. Stone.
 Erasmus P. Spruce.
 Michael J. Cahoon.
 George J. Holmes.
 Lawrence M. Crooks.
 William P. Cassell.
 Samuel W. Irving.
 Robert M. Clark.
 Hermann Stromer.
 Arvid Anderson.
 Kenneth E. Kellogg.
 Edward L. Whittemore.
 Thomas E. Keck.
 William W. Brackett.
 Louis D. Hoot.
 Fred T. Proctor.

Plainville:

John S. Hall.
 Theodore G. Wright.

Rocky Hill:

Orrin A. Moore.

Simsbury—Tartford:

Charles M. Wooster.
 John P. Carter.

Southington:

William D. Woodman.
 William G. Miller.
 William B. Cushing.

South Windsor:

May S. Todd.
 Henry A. Deane.

* Exempted from taxation.

Saffield:

Jesse K. Mason.
Matthew T. Newton.
Philo W. Street.

West Stratford:

William B. Caldwell.

West Hartford:

Charles O. Pariston.

Wethersfield:

Edward G. Fox.
Arthur W. Howard.

Windoor:

Newton S. Bell.
Leander E. Skinner.
Howard P. King.

Windon Locks:

Joseph A. Congan.
William J. Coyle.
Myron P. Robinson.

NEW HAVEN COUNTY.

AUGUSTIN A. CHANE, M.D., Waterbury, President.

H. A. McDermott, M.D., New Haven, Vice-President.

William S. Barnes, M.D., New Haven, Clerk.

County Reporter.—Caroline North, M.D., Wallingford.

Censors.—J. D. Easton, M.D., J. B. Townsend, M.D.,

J. L. McClary, M.D.

Annual Meeting, held Thursday (11 April) 1900—Annual Dinner
Thursday 18 October.

New Haven:

S. G. Hubbard, No. 23 College Street.
C. A. LINDSEY, No. 15 Elm Street.
John Nioff, No. 19 College Street.
T. H. Bishop, No. 115 Church Street.
FRANCIS BACON, No. 32 High Street.
A. E. Wischell, No. 69 Pearl Street.
Galvest S. Ives, No. 239 Temple Street.
Eugene L. Bissell, No. 148 Crown Street.
Arthur Rotzkoff, No. 71 Olive Street.
Walter Johnson, No. 1145 Chapel Street.
Frederick Bellows, No. 209 Orange Street.
S. D. Gilbert, No. 22 Wall Street.
J. P. C. Foster, No. 109 College Street.
W. H. Carnall, No. 37 Elm Street.
T. H. Russell, No. 127 Elm Street.
F. H. Whittemore, No. 49 Elm Street.
C. P. Lindsay, No. 37 Elm Street.
H. Fuchsner, No. 918 Grand Avenue.
M. Malbroux, No. 151 Meadow Street.
M. C. O'Connor, No. 852 State Street.
Charles E. Park, No. 47 Elm Street.
P. E. Parkwith, No. 129 Church Street.
Gustavus Rind, No. 169 Church Street.
J. E. Stearns, No. 104 High Street.
J. P. Luby, No. 331 Grand Avenue.
William W. Hawkes, No. 55 High Street.
Frank H. Wheeler, No. 221 Crown Street.
Herbert E. Smith, Medical College.
Benjamin L. Lambert, No. 578 Howard Avenue.
F. W. Wright, No. 48 Pearl Street.
Edward K. Roberts, No. 741 Grand Avenue.
Oliver T. Osborne, No. 732 York Street.
Lutz C. Froehner, No. 141 Green Street.
William G. Daggett, No. 189 Church Street.
Leola S. DePauet, No. 115 Orange Street.

- Henry L. Swain, No. 222 York Street.
 Mary B. Moody, Sherland Avenue, cor E. Grand Avenue.
 G. F. Carver, No. 1 Whalley Avenue.
 J. H. Townsend, No. 29 College Street.
 T. M. Cahill, No. 40 Pearl Street.
 C. J. Foote, No. 24 Elm Street.
 Marvin Smith, No. 73 Pearl Street.
 S. J. Maher, No. 212 Orange Street.
 Jay W. Sawyer, No. 25 Lynwood Street.
 Leslie B. Bishop, No. 254 Orange Street.
 H. W. Hunt, No. 187 Church Street.
 W. C. Welch, No. 48 College Street.
 A. O. Barthault, No. 528 Chapel Street.
 Rutha McVern, No. 145 Bradley Street.
 Edward M. McCabe, No. 22 Elm Street.
 James M. Kelly, No. 131 Cedar Street.
 Clarence E. Skinner, No. 87 Green Street.
 N. B. Hutchinson, No. 118 York Street.
 Benjamin A. Cheney, No. 40 Elm Street.
 Charles A. Tuttle, No. 184 York Street.
 Harry B. Farris, No. 158 York Street.
 Henry F. Klenke, No. 228 Grand Avenue.
 Leonard W. Mason, Jr., No. 294 Elm Street.
 Paul S. Robinson, No. 164 Grand Avenue.
 Arthur N. Alding, No. 195 York Street.
 R. A. McDowell, No. 1142 Chapel Street.
 E. P. Pitman, No. 32 Sylvan Avenue.
 Isaac N. Porter, No. 188 Dixwell Avenue.
 Ernest H. Arnold, No. 46 York Square.
 Robert E. Peck, No. 16 Howe Street.
 Daniel A. Jones, No. 148 Chapel Street.
 William C. Wurtzberg, No. 28 Elm Street.
 Chauncey S. Lark, No. 774 Howard Avenue.
 Frederick N. Sperry, No. 74 Wooster Street.
 William F. Verdi, No. 18 Elm Street.
 Charles J. Bartlett, Medical College.
 Morris D. Shattory, No. 544 Howard Avenue.
 Ward B. Sanford, No. 66 Edwards Street.
 William M. Keira, No. 141 Olive Street.
 Leonard C. Safford, No. 214 Crown Street.
 Willis H. Cross, No. 105 Whalley Avenue.
 Archibald McNeil, No. 51 Livingston Street.
 Charles H. Robbins, No. 326 Grand Avenue.
 Louis M. Gompertz, No. 231 York Street.
 Alfred G. Nades, No. 122 Olive Street.
 T. E. Beard, Jr., No. 161 Wooster Street.
 William Foregger, No. 354 George Street.
 Joseph B. Monahan, No. 698 Howard Avenue.
 Frederick C. Bishop, No. 1222 Chapel Street.
 James H. J. Flynn, No. 648 Howard Avenue.
 Frank A. Kirby, No. 221 Dixwell Avenue.
 William J. Sheehan, No. 615 Howard Avenue.
 John F. Sullivan, No. 265 Hanchley Avenue.
 John S. Rhy, No. 11 Trumbull Street.
 Edward F. McIllooh, No. 181 York Street.
 Nicola Mariani, No. 110 Green Street.
 August M. Hammond, No. 165 College Street.
 George L. Hemmingway, No. 88 Broadway.
 Bernard E. Herrick, No. 602 Diamond Avenue.
 James S. Maher, No. 215 Orange Street.
 James D. Littlejohn, No. 168 George Street.
 A. W. Marsh, No. 1812 Whalley Avenue.
 William N. White, No. 18 Harrison Street.
 *William S. Barnes, No. 528 Howard Avenue.

Irwin Granata, No. 64 Edgewood Avenue.
 Clarence L. Kilbourn, No. 202 Halsey Avenue.
 Theodor D. Pullman, 428 Whiting Avenue.
 Gilbert T. McMaster, No. 42 Trumbull Street.
 Henry H. Smith, No. 43 Elm Street.
 Julia E. Teale, No. 151 Franklin Street.
 Harry L. Welch, No. 44 College Street.
 Wilfred F. Allen, No. 195 Diverse Avenue.
 Otto G. Hamsey, No. 251 Church Street.
 Thomas J. Bergin, No. 545 Howard Avenue.
 Francis P. Henry, No. 153 Olive Street.
 Thomas V. Ryan, No. 25 College Street.
 Harry M. Keeley, No. 228 Church Street.
 Ellis E. Hartshorn, No. 1128 Chapel Street.
 Richard P. Rand, No. 246 Church Street.
 Edward S. Moulton, No. 38 Elm Street.
 Timothy Francis Collins, No. 600 Howard Avenue.
 William James Butler, No. 712 Howard Avenue.
 David Berensky, No. 369 George Street.
 Louis A. Nodding, No. 79 Howard Avenue.
 Yervant K. McDerwatt, No. 225 Columbus Avenue.
 David L. Russell, No. 1578 Chapel Street.
 Francis H. Reilly, No. 212 Columbus Avenue.

Ansonia:

Louis E. Cooper.
 Louis H. Wilmet.

Branford:

C. W. Gayford.
 A. J. Tenney.

Stony Creek:

George H. Townsend.

Cheshire:

Charles N. Denison.

Berby:

F. N. Lorenz.
 Elmer T. Sharpe.
 Edward A. Balke.
 Royal W. Pinner.

East Haven:

Charles W. Holbrook.

Guttford:

George H. Beale.
 Ruford B. West.

Hartford:

Walter K. Lax.

Mt. Carmel:

George H. Joslin.

Madison:

*D. M. Webb.
 John M. Shepard.

Merriden:

C. H. S. Davis.
 *N. Nickerson.

A. W. Tracy.
 E. T. Broadstreet.
 J. D. Eggleston.
 Edward W. Smith.
 Ava H. Peck.
 E. W. Pierce.
 E. D. Otis.
 F. P. Griswold.
 E. D. Hall.
 H. W. Delandemeyer.
 H. A. Meeks.
 William Galvin.
 J. W. H. La Pointe.
 Joseph A. Cooke.
 Albert E. Van Tol.

Milford:

E. B. Heady.
 E. C. Beach.
 A. L. Tuttle.

Songamuck:

Thomas M. Ball.
 Frederick Spring.
 James W. Hefkins.
 William J. Delaney.
 Edwin H. Johnson.
 Frank J. Tuttle.
 John J. Carroll.

South Haven:

H. B. Goodbear.
 Edwin H. Hildwell.
 Gustaf S. Higgins.

Wauke-Wood Haven:

J. P. Barnwell.
 William V. Wilson.
 David Shepard.
 Charles D. Phelps.
 Victor A. Komarowski.
 Paul B. Kennedy.

*Exempted from taxation.

Oxford:

*Lewis Ballant.

Seymour:Frank A. Bennett.
Elias W. Davis.**Wallingford:**J. D. McLaughlin.
C. H. Atwater.
William S. Russell.
William P. Wilson.
Caroline North.
David H. Lyman.**Waterbury:**F. E. Curtis.
E. W. McDonald.
Walter L. Barber.
C. W. S. Frost.
CHARLES S. RODMAN.
J. M. Benedict.
Carl E. Munger.
Bernard A. O'Hara.
John P. Hayes.
Augustin A. Crane.Patrick T. O'Connor.
John D. Freney.
Charles A. Hamilton.
George O. Robbins.
Charles H. Brown.
Edward W. Goodenough.
Myron L. Casley.
Frederick G. Graves.
John E. Poore.
James L. Mockery.
George W. Russell.
Daniel L. Maloney.
Thomas J. Kilmarick.
Krest D. Chibman.
Charles A. Monagan.
Henry C. Anderson.
Henry E. Hunsford.
Harry E. Ballant.
Nelson A. Pansroy.
Thomas J. Lally.
Patrick J. Dwyer.
Louis J. Thibault.
William A. Goodrich.
Adrian D. Dault.**Waterville:**

Joseph R. Hensy.

NEW LONDON COUNTY.JOHN O. STANTON, M.D., New London, President.
Charles E. Brayton, M.D., Kensington, Vice President.
Morton E. Fox, M.D., Uxbridge, Clerk.

County Reporter—C. R. Graves, M.D., New London.

Censors—L. S. Padlock, M.D., William Witter, M.D.
F. N. Truman, M.D.Annual Meeting, first Thursday in April; semi-annual, first
Thursday in October.**Colchester:**

Raymond E. Handy.

Montello—Uxbridge:

*Morton E. Fox.

East Lyme—Niantic:

Frederick H. Dart.

New London:Abert W. Nelson.
FRANCIS N. BRAMAN.
John G. Stanton.
Charles B. Graves.
David H. Hoyer.
Charles F. Pettit.
Thomas W. Rogers.
J. Clifton Taylor.
Patrick J. Cassidy.
Harry M. Lee.
Emmett A. Herdick.
Edward C. Chipman.
Gordon S. Allyn.**Griswold—Jewett City:**

George H. Jennings.

Groton:Edmund F. Daughan.
Frank W. Brown.**Norfolk:**

William M. Hill.

Lyme:

John J. Barnhart.

*Exempted from taxation.

Norwich:

Daniel Sullivan.
 Lewis S. Padlock.
 William Witter.
 William S. C. Perkins.
 Patrick Cassidy.
 LEONARD B. ALMY.
 Anthony Peck.
 Julian LaFerre.
 Edward P. Brewer.
 Newton P. Smith.
 Wilbur K. Tingler.
 William T. Browne.
 George H. Harris.
 Rush W. Kimball.
 James J. Donahue.
 Harvey E. Higgins.
 Charles H. Perkins.
 Patrick H. Harriman.
 Dennis J. Shahan.
 John B. Evans.

Taftville:

George Thompson.
 Alphonse Fontaine.

Yantic:

Herbert H. Howe.

Stonington:

Charles E. Grayton.
 Norman L. Drake.
 George D. Stanton.

Mystic:

Frank A. Coates.

Old Mystic:

Albert T. Chapman.
 William H. Gray.

Voluntown:

Warren B. Davis.

Waterford:

George M. Minor.

FAIRFIELD COUNTY.

WILLIAM J. TRACEY, M.D., Norwalk, President.

William S. Russell, M.D., Shelton, Vice President.

Herbert R. Smith, M.D., Bridgeport, Clerk.

Edwards M. Smith, M.D., Bridgeport, Secretary.

County Reporter.—Donald H. MacLean, M.D., Danbury.

Censors.—N. E. Wadlin, M.D., Frederick Schavast, M.D.,

W. B. Cogswell, M.D.

Annual Meeting, second Tuesday in April, at Bridgeport; semi-annual in October.

Bridgeport:

Andrew J. Smith, No. 181 Barnum Avenue.
 GEORGE L. DOWDYER, No. 272 State Street.
 Robert Lander, No. 218 Fairfield Avenue.
 Curtis H. Hill, No. 412 State Street.
 N. E. WOODEN, No. 274 Fairfield Avenue.
 F. M. Wilson, Nos. 324-326 Myrtle Avenue.
 F. R. Davis, No. 388 Lafayette Street.
 J. W. Wright, Nos. 385-328-312 Myrtle Avenue.
 A. A. Holmes, No. 221 Broad Street.
 Charles C. Godfrey, No. 340 State Street.
 S. M. Garlick, No. 478 State Street.
 Henry Dodge, No. 477 State Street.
 J. C. Lynch, No. 485 State Street.
 C. C. Hoyt, No. 3238 State Street.
 G. W. Osborn, No. 883 Broad Street.
 J. H. Topping, No. 248 Notre Avenue.
 H. W. White, No. 399 State Street.
 Jacob May, No. 174 Franklin Street.
 F. C. Graves, No. 581 State Street.
 G. B. Cowell, No. 182 East Washington Avenue.

*Exempted from taxation.

George E. Ober, No. 335 East Main Street.
 D. C. DeWolfe, No. 316 Fairfield Avenue.
 Henry S. Miles, No. 417 State Street.
 Charles L. Banks, No. 295 West Avenue.
 Frederick L. Day, No. 477 State Street.
 Edward Fitzgerald, No. 328 East Washington Avenue.
 George E. Ford, No. 327 State Street.
 Frank M. Tabor, No. 429 State Street.
 William W. Gray, No. 344 West Avenue.
 James D. Gohl, No. 825 Myrtle Avenue.
 Wesley A. Lockhart, No. 188 Washington Avenue.
 Harriet A. Thompson, No. 635 Warren Street.
 Frederick J. Adams, No. 327 Fairfield Avenue.
 W. J. A. O'Hara, No. 361 Barrum Avenue.
 David M. Treceatin, No. 309 Park Avenue.
 Harry W. Pluck, No. 421 State Street.
 Thomas L. Ellis, No. 227 West Avenue.
 Charles E. Townsend, No. 344 State Street.
 Herbert E. Smyth, No. 216 Main Street.
 Harry B. Bennett, No. 947 State Street.
 J. Murray Johnson, 353 State Street.
 Elmer P. Blank, No. 387 Noble Avenue.
 George M. Delasser, No. 438 Noble Avenue.
 Irving L. Nettleton, No. 285 Noble Avenue.
 Richard W. Ives, No. 213 State Street.
 Edwards M. Smith, 348 State Street.
 Frank L. Smith, No. 2174 Main Street.
 David B. Wason, No. 211 State Street.
 Thomas F. Munton, No. 374 State Street.
 Edward Desmond Smith, No. 334 Myrtle Avenue.
 Frank W. Stevens, No. 461 State Street.
 George Howell Warner, No. 418 State Street.
 Daniel Michael Driscoll, No. 467 State Street.
 Chester E. Blackman, No. 1113 Stratford Avenue.
 David H. Mordhaun, No. 1 Casselman Street.
 George F. Shively, No. 463 State Street.
 Henry E. Waterhouse, No. 478 State Street.
 Robert J. Lynch, No. 211 Fairfield Avenue.
 Charles J. Leary, No. 683 State Street.
 Philip W. Ball, No. 334 Fairfield Avenue.
 Louis Swenson, No. 283 East Main Street.
 Albert J. Roberts, No. 345 State Street.

Bethel:

A. E. Barber.
 George DeWitt Wight.
 Homer P. Moore.
 Charles R. Hart.

Danbury:

F. P. Clark.
 E. A. Stratton.
 W. E. Wason.
 D. Chester Brown.
 H. P. Brownlee.
 Nathaniel Felbeck.
 George E. Lemmer.
 Charles P. Craig, U. S. A.
 John A. Wade.
 William F. Gordon.
 William T. Brownson.

Nash Hook:

W. H. Kiernan.

Darien:

George H. Noxon.

Noroton:

M. W. Hesterman.

Fairfield:

W. H. Donaldson.

Greenfield Hill:

M. V. B. Dusham.

Greene Farm:

David W. McFarland.

Southport:

Joseph L. Hetzel.
 Robert E. Perkins.

Greenwich:

Frank Perry Brooks.
 Fritz C. Hyde.
 William L. Griswold.
 Alvin W. Edm.
 Lloyd O. Thompson.
 John A. Clarke.
 William Burke.
 Leander P. Jones.

*Exempted from taxation.

Ilyerside:

Charles Ryan.

Harrington-Shelton:

GOULD A. SHIRKTON
William A. Randall
Francis I. Nettleton
Joseph G. Mahoney

Manroe—Stepney:

RETH HILL.

New Canaan:

Clarence H. Scoville
Myra J. Brooks.

Norwalk:

James G. Gregory.
R. L. Higgins.
K. B. Harrington.
William J. Tracey.
Arthur B. Turner.

North Norwalk:

A. N. Clark.
C. G. Bohannon.
Lauren M. Allen.
Henry C. Smerer.
John Dummerler.
Wright B. Dean.

East Norwalk:

Frederick B. Baker.

Rodding:

Ernest H. Smith.

Ridgefield:

Russell W. Lowe.
Howard P. Manchester.

Standford:

A. R. Harbert.
Samuel Pierson
A. N. Phillips.
E. P. Van Vleet.
P. Schavone.
Wm. E. Treadway.
Donavon G. Philib.
James A. Mack.
George Sherrill.
Walter E. Hies.
Frank M. Tiffany.
Daniel A. Harrahan.
George E. Heruberg.
John J. Chorman.
Dean Foster.
John B. Briggs.
Donald C. MacLean.

Stratford:

H. E. Cogswell.
G. P. Lewis.

Weston—Lyon's Plains:

P. Gotham.

Westport:

George B. Denton.
P. Powers.
P. D. Rutland.
*L. H. Wheeler, U. S. A.
Suzart W. Greenwood.

Wilton:

A. B. Garbutt.

WINDHAM COUNTY.

CHAS. C. GILDERSLEEVE, M.D., East Woodstock, President.

Robert C. Wallis, M.D., Williamantic, Vice President.

James L. Gardner, M.D., Central Village, Clerk.

County Reporter—Charles M. Knight, M.D., Chaplin.

Censors—John E. Kent, M.D., George W. May, M.D.,

Arthur E. Darling, M. D.

Annual Meeting, Third Thursday in April.

Brooklyn—Watrogen:

*A. H. Vaneer.

Chaplin:

Charles M. Knight.

Danielson:

HENRI ROBINSON.
W. H. Johnson.
C. J. Lettair.
Frank B. Coops.

*Exempted from taxation.

- James K. Shannon.
George M. Harpough.
- Hampton:**
Alice Avery.
- Killingly:**
Abner E. Darling.
Henry L. Harwood.
- East Killingly:**
Charles E. Hill.
- Moscow:**
Charles N. Allen.
W. W. Adams.
Frederick E. Hatfield.
- Central Village:**
*James L. Gardner.
- Plainfield:**
Arthur A. Chase.
- Poultney:**
J. H. Overlock.
- Punnam:**
John B. Kent.
P. A. Merrill.
- John LaRue.
Leola O. Merriam.
Warren W. Foster.
Henry H. Lowe.
Marguerite J. Ruffard.
- Thompson:**
*LOWELL HOLBROOK.
Robert C. Palmer.
- North Greenway Dale:**
J. F. Melittash.
- Windham:**
F. E. Gifford.
- Williamsville:**
Frederick Rogers.
T. MORTON HILLS.
T. H. Parker.
John Weldon.
H. C. Wells.
George W. May.
Laura H. Hills.
Joseph A. Gifford.
- Woodstock:** Earl Woodstock.
Charles C. Giddensboro.

LITCHFIELD COUNTY

- FERGUSON H. KNIGHT, M.D. Laverette. President.
Albert E. Cobb, M.D. Falls Village. Vice President.
Living L. Harwood, M.D. Norfolk. Clerk.
County Reporter—Annie J. Burkes, M.D., Torrington.
Censors.—J. E. Harwood, M.D. N. S. Wadham, M.D.
W. R. Hubbard, M.D.
- Annual Meeting: Fourth Tuesday in April (non-annual) second Tuesday in October.
- Berkeley:**
Edna May Hadley-Judd.
- Canaan—Falls Village:**
Albert E. Cobb.
Francis R. Skiff.
- Corwall—West Corwall:**
Joseph Robinson.
- Goshen:**
J. H. North.
Nash S. Wadham.
- Litchfield:**
J. T. Ingraham.
John L. Hall.
W. S. MacLaren.
Clifton N. Warren.
Charles E. Page.
- New Hartford:**
Joshua Brown.
Paul P. Street.
- New Milford:**
George E. Shaw.
George H. Wright.

*Exempted from taxation.

Norfolk:

John C. Kendall
 I. L. Hamant,
 Lucius D. Haskley,
 Frederick J. Dennis

North Chatham—Canaan:

Charles W. Camp,
 Frank H. Lee,
 John G. Adams

Plymouth—Tisburyville:

W. W. Wellington,
 A. V. Shaghton

Salisbury:

Philip H. Sellow.

Lakeville:

William Bissell,
 George H. Knight,
 William B. Russell,
 Ernest H. Pike.

Sharon:

Clarence W. Bassett,
 Jerome S. Chaffee.

Thomaston:

George D. Ferguson,
 T. G. O'Connell,
 Robert Hanes,
 Ralph S. Goodwin.

Torrington:

William L. Platt,
 Thatcher S. Hensbrett,
 Elmer Pratt,
 J. W. Johnson,
 Jerome S. Bissell,
 James D. Hayes,
 Abram J. Barker,
 Charles H. Carter,
 Sanford H. Wellman,
 H. D. Moore,
 William J. Hogan,
 Timothy M. Ryan.

Washington:

William J. Ford

Waterbury:

Ernest K. Loveland

Winchester—Winsted:

Edward L. Pratt,
 William S. Halbert,
 Salmon J. Bond,
 David D. Hodge,
 Ernest R. Kelsey.

West Wallcut:

Edward H. Welch,
 William S. Richards.

Woodbury—Hatchamsville:

Egbert L. Smith.

MIDDLESEX COUNTY.

FREDERICK A. SMITH, M.D., Chester, President.

CHARLES A. SCOTT, M.D., Portland, Vice President.

JOHN E. LOVELAND, M.D., Middletown, Clerk.

County Reporter.—JOHN H. MOUNTAIN, M.D., Middletown.

Censors.—S. W. TURNER, M.D., C. H. HARRIS, M.D.

M. C. HANES, M.D.

Annual Meeting, second Thursday in April; semi-annual, second Thursday in October.

Chatham—Middlefield:

George N. Lawson.

East Hampton:

Albert F. Wild,
 Arthur H. Meyers.

Chester:

*Sylvester W. Turner,
 Fred Sumner Smith.

Clifton:

David Austin Fox.

Cromwell:

Frank K. Halloway,
 Charles E. Bush.

East Haddam:

M. W. Primmer, Jr.

*Exempted from taxation.

Essex:

Charles H. Hubbard.
 Frederick Barton Braden
 Frederick Stanley Cowles

Haddam:

Miss C. Haze.

Killingworth:

Edward P. Nichols

Middleton:

Wm. R. Fisher.
 Charles E. Stanley.
 Henry S. Noble.
 Michael D. Murphy.
 John E. Bailey.
 Arthur J. Campbell.
 Arthur R. Coleburn.
 J. Francis Culef.
 John E. Loveland.
 Kate C. Mead.
 Lewis Mallard.
 Daniel A. Nolen

Allen Rose DeForest.

John H. Mountain.
 Charles B. Yeater.
 James W. Fisher.
 James T. Mitchell.
 George Swift.
 James Henry Kingman.
 Thomas Patrick Watson.
 Sarah Ruth Jew.
 Louis Franklin LaPierre.

Old Saybrook:

Calvin V. Gentry

Portland:

Cliffman A. Stone.
 Frank E. Potter.
 James Murphy.
 Dennis L. Glynn

Saybrook—Deep River:

Edwin Tidwell.
 Howard T. Frown.
 Arthur Pratt.

TOLLAND COUNTY.

KENNETH O. GINSBURG, M.D., Rockyvale, President.
 James Electric M.D., Stafford Springs, Vice President.
 V. F. O'Laughlin, M.D., Rockyvale, Clerk.

County Reporter.—C. B. Newton, M.D., Stafford Springs.

Censors.—V. Ginsburg, M.D., A. B. Goodrich, M.D.,
 E. O. Winslow, M.D.

Annual Meetings held Tuesday in April, semi-annual third
 Tuesday in October.

Coventry:

John P. Pike

E. P. Fitch

T. F. O'Laughlin

South Coventry:

W. L. Higgins.
 Louis I. Mason.

Kenneth O. Winslow

Dean C. Bangs

Frederick W. Ward

Ellington:

E. T. Davis.

Arthur L. Burr

Mansfield—Mansfield Depot:

F. E. Johnson

Stafford—Stafford Springs:

C. B. NEWTON

F. L. Smith

James Street

Rockville:

Frederick Hirsch.
 T. F. Rockwell

Vernon:

A. B. GOODRICH

*Exempted from 1888/900.

ALPHABETICAL LIST

OF THE

MEMBERS OF THE CONNECTICUT MEDICAL SOCIETY,

With Date and Place of Graduation, and Post-Office Address.

In preparing this list the Secretary has followed the list in the Proceedings of 1887, made with great care and added by Dr. J. B. Lewis for the Centennial Year. It may be relied upon as being correct.

Name.	Medical Graduation.	P. O. Address.
Abrams, Alex. Elmathan.	Albany, '81.	Hartford.
Adams, John George.	Trinity, Tex., 1889.	No. Canton.
Adams, Frederick Joseph.	Univ. N. Y., '75.	Bridgeport.
Adams, Henry Ely.	Yale, '92.	Hartford.
Adams, William Wallis.	Belleme, '81.	Middletown.
Allen, Charles North.	Univ. Vt., '81.	Middletown.
Allen, Edward Oliver.	Univ. N. Y., '79.	Great Brook.
Allen, James Melville.	P. & S., N. Y., '80.	No. Norwalk.
Allen, Willard Pillsbury.	Med. Coll. Phil., '85.	New Haven.
Allen, Arthur Nathaniel, B.A.	Yale, '86.	New Haven.
Allyn, Gordon Spicer.	P. & S., N. Y., '81.	New London.
Allyn, Leonard Hutton, B.A.	Univ. Pa., '83.	New London.
Allyn, Charles De Lancy.	Belleme, '76.	Newtown.
Anderson, Arvid.	Belleme, '77.	Hartford.
Anderson, Henry Gray.	Univ. Mich., '92.	No. Britain.
Arnold, Ernest Hermann.	P. & S., N. Y., '89.	Waterbury.
Arnold, Edwin Huntington.	Yale, '94.	New Haven.
Avery, Amos.	P. & S., N. Y., '71.	Wallingford.
Austin, John Franklin.	L. I. Hosp. Coll., '83.	Hartford.
	C. I. Hosp. Coll., '71.	Hartford.
Bachus, Harold Benson.	L. I. Hosp. Coll., '81.	Great Brook.
Bacon, Francis.	Yale, '54.	New Haven.
Bacon, Leonard Woolsey, Jr.	Yale, '87.	New Haven.
Bacon, William Turner.	Univ. N. Y., '71.	Hartford.
B.A., Yale, '88, M.A., '91.	Yale, N. Y., '88.	Hartford.
Baker, George Cornelius.	P. & S., N. Y., '83.	Middletown.
Baker, John Elmore.	P. & S., N. Y., '81.	Hartford.
Baker, Michael Angelo.	Univ. Vt., '81.	Waterbury.
Baldard, Harry Henry.	Univ. Med., '85.	No. Norwalk.
Baker, Frederick Birdseye.	Cleveland Coll., '81.	Rockville.
Baker, Dean.	P. & S., N. Y., '81.	Bridgeport.
Baker, Charles Lincoln.	Verulam, '54.	Island.
Baker, Abner James.	Belleme, '77.	Waterbury.
Barkham, Arthur Octave.	Belleme, '87.	Torrington.
Barnes, Lewis, B.A., M.A.	Vin. Med. Coll., '85.	New Haven.
Yale, '87.	Univ. N. Y., '80.	Hartford.
Barnes, Wm. Samuel, Ph. D.	Yale, '81.	New Haven.
Yale, '85.	Yale, '85.	West Haven.
Barnett, John Frederick.	Univ. N. Y., '87.	Hartford.
Barnes, Ross Stafford, Ph. D.	Yale, '92; M.A., Yale, '94.	New Haven.
Yale, '82.		
Bartlett, Charles Joseph, B.A.		
Yale, '92; M.A., Yale, '94.		

Name.	Medical Graduation.	P. O. Address.
Russell, Clarence Wheeler.	Univ. N. Y., '82.	Sharon.
Reach, Charles Colberg.	P. & S. N. Y., '82.	Hartford.
Reich, Edward Charles.	Yale, '85.	Midford.
Reyn, Wright Butler.	P. & S. N. Y., '85.	So. Norwalk.
Reed, Theodore Edward Jr.	Yale, '87.	New Haven.
Reckwith, Frank Edwin.		
M.A., Yale, '81.	P. & S. N. Y., '71.	New Haven.
Reese, George Hesle.	Univ. N. Y., '79.	Gaithers.
Ree, George Newton.	Yale, '82.	Hartford.
Ree, Newton Stephen.	Univ. Vt., '84.	Watson.
Rehm, Frederick.	Yale, '72.	New Haven.
Benedict, Frank Allen.	P. & S. N. Y., '87.	Seymour.
Benedict, John Mitchell.	Univ. N. Y., '81.	Waterbury.
Bennett, Harry Raymond.	Univ. Vt., '85.	Bridgeport.
Bercksky, David.	Yale, '91.	New Haven.
Bergin, Thomas Joseph.		
A. B., Yale, '86.	Yale, 1888.	New Haven.
Bernan, Charles Ambrose.	Med. Coll., Chicago, '87.	West Haven.
Bidwell, Edwin.	Yale, '87.	Deep River.
Bidwell, Edwin Hamilton.	Dartmouth, '84.	North Haven.
Bill, Curtis Harvey.	Univ. N. Y., '78.	Bridgeport.
Bill, Philip Worcester.		
P. & S., Yale, '87.	P. & S. N. Y., '91.	Bridgeport.
Bishop, Frederick Courtney.		
B.A., Yale, '87.	Yale, '91.	New Haven.
Bishop, Louis Bennett.		
B.A., Yale, '84.	Yale, '88.	New Haven.
Bishop, Timothy Huggins.	Yale, '86.	New Haven.
Bisset, Evelyn Louise.	Yale, '88.	New Haven.
Bisset, Jerome Samuel.	Yale, '94.	Torrington.
Bisset, William, B.A.		
Yale, '82.	Yale, '84.	Lakeside.
Blanch, William Parsons, A.B.		
Yale, '81.	P. & S. N. Y., '92.	Lakeside.
Blackman, Chester Eugene.	I. I. Hosp. Coll., '87.	Bridgeport.
Blackard, Irving DeLoe.	Yale, '87.	Hartford.
Black, Elmer Francis.	Stanford, '82.	Bridgeport.
Black, Henry, A.B., Yale, '75.	Bethel, '81.	Bridgeport.
Blackman, Charles Gordon.	Univ. N. Y., '78.	So. Norwalk.
Blackford, Charles Foster.	Yale, '84.	Hartford.
Blackman, John Leonard.	P. & S. N. Y., '84.	Hartford.
Boston, George David.	Y., '88; N. Y. M., '86.	Westport.
Brackett, Arthur Stone.	Jefferson, '85.	Bristol.
Brackett, William Walker.	Jefferson, '86.	New Britain.
Bradley, Frederick Burton.	Univ. Pa., '89.	Essex.
Bradstreet, Edward Thomas.		
B.A., Yale, '74.	P. & S. N. Y., '77.	Meriden.
Bradward, Clifford Brewster.		
Ph. B., Yale, '84.	Yale, '88.	Hartford.
Braman, Vernon Nelson.	Bethel, '86.	New London.
Braman, Charles Keble.	P. & S. N. Y., '72.	Stamford.
Braman, Andrew Kirk.	Yale, '81.	New Haven.
Brammer, Edward Philip, Ph.D.	Dartmouth, '79.	Kewitch.
Brammer, David Tyler.	Yale, '87.	Hartford.
Brownson, William Thaddeus.	Univ. N. Y., '85.	Danbury.
Brooks, Frank Terry, B.A.		
Yale, '83.	P. & S. N. Y., '85.	Greenwich.
Brooks, Mary Joel.	Yale, '87.	New Canaan.
Brown, Charles Henry.	Yale, N. Y., '82.	Waterbury.
Brown, David Chester.	Yale, '84.	Danbury.
Brown, William Tyler, Ph.D.		
Yale, '75.	Harvard, '81.	Norwich.
Brownson, Harris Fenton.	P. & S. N. Y., '88.	Danbury.
Buel, John Eddley.	P. & S. N. Y., '88.	Litchfield.
Bulkley, LeRoy Duncan, M.A.		
A.B., Yale, '85.	P. & S. N. Y., '89.	Norfolk.

Names.	Medical Graduation.	P. O. Address.
Bail, John Noyes.	P. & S. N. Y., '78.	Palmville.
Bail, Thomas Marcus.	P. & S. N. Y., '87.	Stamford.
Ballard, Margaretta Jane.		
A.B., Cornell, '92.	Yale, '94.	Palmville.
Baker, Philip Debbis.		
A.B., Yale, '88.	P. & S. N. Y., '91.	Hartford.
Barnett, William Perkins.	Yale, N. Y., '82.	New Britain.
Barks, William.	L. I. Hosp., '85.	Greenwich.
Burnham, John Lewis.	Yale, '89.	Lynn.
Burroughs, Geo. McClellan.	Med. Coll., '89.	Durham.
Bush, Charles Ellsworth.	Yale, '94.	Crosswell.
Bowler, William James.	L. I. Med. Coll., '92.	New Haven.
Calcutt, Joseph Henry.	Yale, '92.	Stamford.
Calcutt, Thomas Mathew.	Yale, '88.	New Haven.
Calderell, William Kip.	Med. Coll., '91.	West Suffield.
Calif, Jeremiah Francis.		
B.A., Wesleyan, '77.	Yale, '88.	Middletown.
Camp, Charles Wilford.	Yale, N. Y., '91.	Canaan.
Campbell, Arthur Joseph.	P. & S. N. Y., '85.	Hartford.
Carlin, Charles Henry.	Yale, '91.	Toronto.
Carson, Philip Patrick.	Yale, N. Y., '96.	Hartford.
Carruth, William Henry.		
M.A., Yale, '89.	P. & S. N. Y., '81.	New Haven.
Carrington, Charles.	P. & S. N. Y., '98.	Farmington.
Carrington, Henry Andrew.	Hartford, '88.	Yonkers.
Carron, John James.	Hartford, '89.	Stamford.
Carter, John Preston.	Albany, '94.	New York.
Cassidy, Patrick.	Yale, '91.	New York.
Cassidy, Patrick John, B.A.,		
Yale, '84.	Yale, '94.	New London.
Caslin, Frank Edwin.	Yale, '90.	Waterbury.
Chaffee, Jerome Stuart.		
Ph. D., Yale, '94.	Yale, Pa., '97.	Stamford.
Chapman, Albert Taylor.	P. & S. N. Y., '94.	Stamford.
Chase, Arthur Alford.	Harvard, '91.	Stamford.
Chastell, Rollin Dickinson.	Yale, '91.	Stamford.
Cheney, Benjamin Austin.		
B. A., Yale, '88.	Yale, '94.	New Haven.
Cheney, Thomas Weston.		
B.A., Rutgers, '91; M.A., '96.	P. & S. N. Y., '91.	Hartford.
Chipman, Edward Clifford.	P. & S. N. Y., '91.	New London.
Chipman, Ernest Dwight.	Yale, '91.	Waterbury.
Clark, Arthur Norman.	P. & S. N. Y., '85.	New York.
Clark, Franklin Moses.	P. & S. N. Y., '78.	Durham.
Clark, Robert Moses.	Yale, '91.	New Britain.
Clarke, John Alexander.	Hartford, '97.	Crosswell.
Clary, George A.H.		
Durham, '92.	Yale, '97.	New Britain.
Cooman, John Joseph.	P. & S. N. Y., '87.	Stamford.
Cosier, Franklin Avery.		
A.B., '77; A.M., '79; Brown	P. & S. N. Y., '91.	Myrtle.
Cobb, Alfred Edward.	Yale, '91.	Putnam.
Coffman, Levi Bennett.	Yale, Pa., '91.	Hartford.
Coggswell, William Badger.	Hartford, '91.	Stamford.
Cokane, Timothy Francis.	Yale, '97.	New Haven.
Coleman, Michael James.	Yale, N. Y., '85.	New Britain.
Coleman, Arthur Burr.	P. & S. N. Y., '91.	Middletown.
Corkin, James Henry.	Yale, '91.	Hartford.
Cortman, George Frederick.	Yale, '81.	New Haven.
Coughlin, Joseph Albert.	Hartford, '91.	Windsor Locks.
Cook, Asa Greenville.	P. & S. N. Y., '91.	Hartford.
Cooke, Joseph Anthony.	Yale, '91.	Durham.
Cosier, Myron Lewis.	Yale, '94.	Waterbury.
Cosper, Louis Edward.		
Ph.D., Yale, '94.	Yale, '94.	Stamford.

Naime.	Medical Graduation.	P. O. Address.
Cogg, Frank Harvey.	P. & S. Hall, '54.	Danishen.
Cosell, George B.	P. & S. N. Y., '58.	Bridgeport.
Coulter, Frederick Stanley.	Yale, '91.	East.
Coble, William Joseph.	Med. Coll., '55.	Winthrop Locks.
Craig, Charles Franklin.	Yale, '94.	Danbury.
Craig, William Gilbert.	Yale, '92.	Hamford.
Crisco, Augustin Averill.		
B.A., Yale, '83.	Yale, '87.	Waterbury.
Crisp, David.	Yale, '59.	Hamford.
Croswell, Frederick Edwin.	Hartford, '78.	Hartford.
Crothers, Thomas Davison.	Albany, '62.	Hartford.
Crowe, Willa Hartford.	P. & S. N. Y., '88.	New Haven.
Crowley, William Holmes.	Med. Coll., '98.	Coventry.
Curtis, William Martin.		
Stanley.	Balt. Univ. of M., '91.	Leicester.
Cushing, William Henry.	Baltimore, '72.	Southampton.
Daggett, William Gilbert.		
B.A., Yale, '86.	Univ. P., '84.	New Haven.
Darling, Ashbel Rhoades.	Harvard, '77.	Killingly.
Deer, Frederick Howard.	P. & S. N. Y., '84.	Natick.
Deer, Adelard David.	Dartmouth, '85.	Waterbury.
Deer, Charles Henry Stanley.	Univ. N. Y., '88.	Meriden.
Davis, Edwin Taylor.	Univ. Vt., '88.	Killingly.
Davis, Elias Warren.		
B.A., Yale, '88.	Yale, '92.	Seymour.
Davis, Gustav Pierfeld.		
B.A., Yale, '88.	P. & S. N. Y., '89.	Hamford.
Davis, Warren Russell.	Univ. Vt., '82.	Warrensville.
Davison, Luther Augustus.	Univ. N. Y., '82.	Hartford.
Day, Frederick Lorenzo.		
B.A., Bates, '81.	Hartford, '83.	Bridgeport.
Deane, Henry Augustus.	Hartford, '88.	South Windsor.
DeForest, Louis Leonard.		
B.A., Yale, '73, M.A., Yale, '81.	Univ. Jona., '83.	New Haven.
Deaney, William Joseph.	McGill Univ., '82.	Naugatuck.
DeGroot, Horace William.	Univ. Vt., '85.	Meriden.
DeGroot, Glenwood, Medall.	Wash. Univ., '91.	Bridgeport.
DeGroot, Charles Nelson.	L. I. Med. Coll., '83.	Cheshire.
Dennis, Frederic Steward.		
B.A., Yale, '72, M.D., C.B.	Baltimore, '74.	Newark.
DeWolfe, Daniel Charles.	Univ. Vt., '86.	Bridgeport.
Dickerman, Wilton Elias.		
B.A., Albany, '73.	Yale, '94.	Hartford.
Difendorf, Allen Ross.		
B.A., Yale, '84.	Yale, '88.	Siddletown.
Donahue, James Joseph.	P. & S. Hall, '85.	Norwich.
Donaldson, William Henry.	Univ. N. Y., '81.	Putnam.
Douglas, Edmund Peabody.	Univ. N. Y., '89.	Groton.
Dove, Michael Joseph.	Balt. Med. Coll., '91.	Thompsonville.
Downing, John Francis.	L. I. Hosp. Coll., '90.	Hartford.
Davis, Edwin Augustus.	P. & S. N. Y., '87.	Hartford.
Dorsey, Roger Charles.	Yale, Vt., '82.	Siddletown.
Dorson, Frederick Bradley.	Univ. N. Y., '78.	Bridgeport.
Douglas, Norman Lucie.	Univ. N. Y., '81.	Storington.
Dwyer, Daniel Michael.	P. & S. N. Y., '80.	Bridgeport.
Dwyer, Jean.	Univ. Ghent, Belg., '89.	St. Norwalk.
Dwyer, Martin Van Buren.	Harvard, '82.	Greenfield Bk.
Dyer, Patrick James.		
A.R., Portland, '84.	Univ. N. Y., '87.	Waterbury.
Eagleton, Jeremiah Levey.	P. & S. N. Y., '79.	Meriden.
Ellis, Gustavus, B.A., Yale, '77, A.M., Yale, '82.	P. & S. N. Y., '83.	New Haven.

Names.	Medical Graduation.	P. O. Address.
Ellis, Thomas Long, B.A. Yale, '34.	Yale, '34.	Bridgeport.
Elmer, Oliver Edward.	P. & S. Rail, '94.	Hartford.
Elv, John Slado. Ph.D., Yale, '81.		
M.A., Columbia, '87.	P. & S. N. Y., '85.	New Haven.
Emmet, Francis Arthur.	Yale, '82.	Hartford.
Enders, Thomas Ebenham.	P. & S. N. Y., '91.	Hartford.
Emign, Robert Eleazer.	Albany, '33.	Stella.
Evans, John Henry.	P. & S. N. Y., '02.	Norwich.
Feltz, John Wellington, A.M., Emporia, Kan., '27.	Jefferson, '84.	Hartford.
Fenn, Art Hamlin.	P. & S. Rail, '16.	Meriden.
Ferguson, George Dean.	Univ. N. Y., '79.	Thomaston.
Ferrin, Carlisle Franklin, B.A., Yale, '91.		
Ferris Harry Burr, B.A., Yale, '87.	P. & S. N. Y., '95.	New London.
Fiehl, Albert.	Yale, '84.	New Haven.
Finch, George Terwilliger. Robert, B.A., '75. B.A. Harvard, '78.	L. I. Hosp. Coll., '43.	E. Hampton.
Fisher, Jennie Weston.	McDermott, '77. Woman's Med. Coll. of Penn., '93.	Thomsonville.
Fisher, William Edwin.	Yale, Pa., '76.	Midletown.
Fiske, Isaac Parsons.	Univ. N. Y., '76.	Midletown.
Fitzgerald, Charles.	Yale, '91, '93.	Canaan.
Fitzgerald, Edward.	P. & S. Rail, '84.	Hartford.
Fitzgerald, William.	Univ. Vt., '95.	Bridgeport.
Flock, Harry Willard.	Jefferson, '88.	Hartford.
Floodkner, Henry.	Yale, '78.	Bridgeport.
Flint, Eli Fenner.	Yale, '78.	New Haven.
Flynn, James Henry Joseph.	Yale, '85.	Hockville.
Fontaine, Alphonse.	Local Coll., '92.	New Haven.
Foster, Charles Jenkins, B.A., Yale, '83.	Harvard, '82.	Norwich.
Ford, George May.	Bellows, '32.	New Haven.
Ford, William J.	Univ. N. Y., '84.	Bridgeport.
Foster, Dean, B.A., Yale, '84.		Washington.
Foster, John Pierpont Cod- rington, B.A., Yale, '69.	Yale, '99.	Stamford.
Foster, Warren Woodford.	Yale, '75.	New Haven.
Fox, Charles James.	Harvard, '82.	Wash'gton, D. C.
Fox, David Austin.	Univ. N. Y., '36.	Williamson.
Fox, Edward Gager.	Calif. & Pac., '02.	Clinton.
Fox, Norton Earl.	Univ. N. Y., '43.	Westfield.
Fryson, Howard Truman.	L. I. Hosp. Coll., '95.	Encampville.
Fryson, John Daniel.	P. & S. N. Y., '91.	Deep River.
Frost, Charles Edward. M.A., Copenhagen, '44.	L. I. Hosp. Coll., '95.	Waterbury.
Froome, Ernst Theodor.	Copenhagen, '76.	Hartford.
Frost, Charles Warren Seth.	Minch. Med. Coll., '83.	New Britain.
Fuller, Horace Smith, Am- herst, B.A., '55; A.M., '61.	P. & S. N. Y., '89.	Waterbury.
Galtin, William.	P. & S. N. Y., '65.	Hartford.
Gandy, Raymond Royce.	Univ. Vt., '82.	Meriden.
Gardner, James Lester.	Univ. Pa., '90.	Cochester.
Gardner, Samuel Middleton. B.A., Dart., '74.	Univ. Vt., '81.	Central Village.
Gardner, Charles Woodward. B.A., Yale, '79.	Harvard, '77.	Bridgeport.
Gilbert, Samuel Dutton. B.A., Yale, '69.	Yale, '72.	Stamford.
	Yale, '71.	New Haven.

Name.	Medical Graduation.	P. O. Address.
Gilbertson, Charles Chas.	Yale, '96.	K. Woodstock.
Gilliam, William S.	Univ. Pa., '88.	No. Manchester.
Gill, Michael Henry.	Yale, '98.	Hartford.
Gillis, Charles Adelbert.	Univ. N. Y., '84.	Berlin.
Gilman, Frederick.	P. & S. N. Y., '81.	Rockville.
Girouard, Joseph Arthur.	Balt. Med. Coll., '99.	Williamsville.
Gladwin, Ellen Hammond.	W. Med. N. Y., '72.	Hartford.
Glynn, Dennis Lawrence.	Balt. Med. Coll., '82.	Portland.
Godfrey, Charles Cartilage.	Dartmouth, '81.	Bridgport.
Gold, James Douglas, Ph.D.	P. & S., '91.	Bridgeport.
Gompertz, Louis Michael.	Yale, '96.	New Haven.
Goodenough, Edward Win- chester, B.A.	Yale, '87.	Waterbury.
Goodrich, Alfred Russell.	Berkshire, '46.	Toronto.
Goodrich, Charles Augustus.	P. & S. N. Y., '98.	Hartford.
B.S., Mass. Ag. Coll., '82.	Med. Phil., '87.	Waterbury.
Goodrich, William Albert.	P. & S. N. Y., '91.	Thetford.
Goodwin, Ralph Schuyler.	Yale, '89.	North Haven.
Goodman, Robert Bourdier.	L. I. Hosp. Coll., '94.	Canbury.
Goheen, William Francis.	Yale, '79.	Bilton.
Graham, Andrew Bennett.	Yale, '74.	Lyons's Place.
Graham, Frank.	Yale, '94.	New Haven.
Granniss, Irvin.	Harvard, '86.	New London.
Graves, Charles Roy, B.A.	Univ. N. Y., '88.	Bridgeport.
Yale, '82.	Yale, '92.	Waterbury.
Graves, Frederick Chauncey.	P. & S. N. Y., '90.	Old Mystic.
Graves, Frederick George.	Berkshire, '80.	Bridgeport.
Gray, William Henry.	P. & S. N. Y., '88.	Normal.
Gray, William Watson, B.S.	Yale, '87.	Stamford.
Dickinson, '82.	P. & S. N. Y., '78.	Middle.
Gregory, James Glynn, B.A.	Univ. N. Y., '79.	East Hartford.
Yale, '81.	P. & S. N. Y., '82.	Greenwich.
Griggs, John Eager.	L. I. Hosp. Coll., '91.	Winsted.
Griswold, Frederick Pratt.	Yale, '91.	Watkins.
Griswold, Julius Herbert.	Univ. N. Y., '79.	Derby.
Griswold, William Lewis.	P. & S. N. Y., '82.	Merriden.
Ph.D., Yale, '81.	L. I. Hosp. Coll., '91.	Hartford.
Groff, Peter Eugene.	Women's Med. Coll., Phila., '91.	
Haley-John, Ella May.	Univ. Ill., '94.	
Haire, Edward Aloysius.	Harvard, '73.	
Hall, Edward Dominick.	Yale, '92.	
Hall, Joseph Barnard.	P. & S. N. Y., '81.	
Hallack, Frank Kirkwood.	L. I. Hosp. Coll., '86.	
A.D., Wesleyan, '87; A.M. '87.	Univ. Vt., '85.	
Hammant, Irving Louis.	Harvard, '85.	
Harrison, Charles Allen.	Yale, '86.	
Harrison, Henry Louis.	Berkshire, '84.	
Ph.D., Brown, '81.	Berkshire, '89.	
Harrison, Samuel Mowbray.	Univ. N. Y., '81.	
Ph.D., Yale, '89.	P. & S. N. Y., '84.	
Hatchett, Thelcher Swift.	L. I. Hosp. Coll., '94.	
Hatchett, Daniel Aloysius.	Univ. Vt., '85.	
Hartman, Patrick Henry.	Univ. N. Y., '81.	
Harris, George Robert.	P. & S. N. Y., '84.	
Hart, Charles Remington.	P. & S. N. Y., '89.	
Hartshorn, Willis Ellis, Ph. D., '51, Colo. Col.	Univ. Min., '88.	
Hawkes, William Whitner.	Yale, '81.	
B.A., Yale, '79.	Dartmouth, '94.	
Hayes, Arthur Douglas.		

Name.	Medical Graduation.	P. O. Address.
Hayes, James Dermot, D.D., M.D., Coll., N. Y.	Univ. N. Y., '84.	Torrington.
Hayes, John Frances.	Univ. N. Y., '73.	Waterbury.
Hazen, Miley Comstock.	Univ. Med., '85.	Haddam.
Hazen, Robert.	Univ. Vt., '88.	Thamaston.
Heady, Elias Inez.	Yale, '72.	Shilford.
Heery, Francis Patrick.	Yale, '88.	New Haven.
Hemmingway, George Isaac.	Univ. Vt., '87.	New Haven.
Henkle, Emanuel Alexander.	Cornell, '89.	New London.
Henn, Louis David.	Univ. N. Y., '89.	New Britain.
Hennrich, Bernard Elton.	Jefferson, '87.	New Haven.
Hertberg, George Robert.	Dartmouth, '89.	Stamford.
Hetzel, Joseph Lynn.	Bellevue, '91.	Southport.
Hewes, Frank William.	Univ. Vt., '84.	Groton.
Heyer, Harold Hutchinson.	Univ. N. Y., '87.	New London.
Higgins, David Weston.	Yale, '89.	North Haven.
Higgins, Harry Eugene.	Univ. N. Y., '86.	Norwalk.
Higgins, Royal Lacey.	Bellevue, '67.	Norwalk.
Higgin, William Lincoln.	Univ. N. Y., '89.	St. Coventry.
Hill, Charles Edwin, B.A., Yale, '76.	Harvard, '79.	E. Killingly.
Hill, Seth.	Yale, '88.	Storrs.
Hill, William Martin.	Univ. Vt., '92.	Norfolk.
Hills, Laura Heath.	W. Med. Coll., Pa.	Williamsville.
Hills, Thomas Merton.	Yale, '62.	Williamsville.
Hogan, William John.	Yale, '91.	Torrington.
Holbrook, Charles Worden, M.A., Andover, '91.	Yale, '86.	East Haven.
Holbrook, Lowell.	Univ. N. Y., '48.	Thompson.
Holmes, Arthur Almond.	Harvard, '65.	Bridgeport.
Holmes, George James.	Albany, '87.	New Britain.
Holford, Joseph Scripture.	P. & S. N. Y., '81.	Wasserville.
Horton, William Wickham.	Univ. N. Y., '78.	Shelton.
Hutchins, Nelson Byron.	Univ. Md., '91.	New Haven.
Houghton, Simon Willard.	Bellevue, '79.	Hartshill.
Howard, Arthur Wayland.	Univ. N. Y., '86.	Wethersfield.
Howard, John.	Dartmouth, '81.	Hartford.
Hood, Samuel Jennings.	Jefferson, '83.	Winsted.
Hove, Barnish George.	Univ. Vt., '75.	
	P. & S. N. Y., '71.	Hartford.
	Univ. Vt., '88.	Yantic.
	P. & S. N. Y., '87.	Bridgeport.
	Yale, '69.	East.
Hove, Herbert B.		
Hoyt, Curtis Clark.	Dartmouth, '61.	New Haven.
Hubbard, Charles Henry.	Univ. N. Y., '84.	Winsted.
Hubbard, Stephen Grover.	Yale, '58.	Waterbury.
M.A., Yale, '60.	Yale, '76.	Norwalk.
Hulbert, William Sharon.		
Hungerford, Henry Edward.	Univ. Vt., '81.	Storrs.
Hurston, Samuel Henry.		
Hurd, Frank L., R. R., No., '82.	P. & S. N. Y., '79.	Stamford.
Hurbutt, Augustin Moen, B. A., Yale, '74.	Ans. Arber, '84.	Greenwich.
Hyde, Fritz Carlston.	Yale, 1869.	New Haven.
Hyman, Thomas Vincent.		
Inglis, Phineas Henry, A.B., Bowdoin, '77 A.M., Bowdoin, '85.	P. & S. N. Y., '80.	Hartford.
Irvine, Samuel Watlington.	Yale, '91.	New Britain.
Isham, Oliver Kinsley.	Univ. N. Y., '88.	Shelton.
Ives, Richard William.	W. Med. Coll., '81.	Bridgeport.
Ives, Robert Schneider.		
B.A., Yale, '84, M.A.,	Yale, '84.	New Haven.
Ives, Sarah Edith.	W. Coll., Pa., '83.	Middletown.

Names	Medical Graduation.	P. O. Address.
Jennings, George Herman	L. I. Hosp. Coll. '75	Jersey City
Johnson, Edwin Hines	Univ. Vt. '58	Newburgh
Johnson, Frederick Eugene	Univ. N. Y. '68	Hamden
Johnson, John Murray	L. I. Hosp. Coll. '95	Bridgeport
Johnson, John William	P. & S. Balt. '91	Fortington
Johnson, Marcus Morton		
Ph.D. Brown, '70	Univ. N. Y. '77	Hartford
Jones, Daniel Abner, B.A.		
Yale, '84, D.M.D., Har-	Yale, '85	New Haven
vard, '89	N. Y. Hom. Med.	Greenwich
Jones, Leander Page	Univ. Vt. '87	Mt. Carmel
Joslin, George Harvey		
Judson, Walter, B.A., Yale	P. & S. N. Y. '70	New Haven
'89; M.A. '91	Jefferson, '78	Danbury
Judson, William Henry		
Kane, Thomas Francis	Belleus, '87	Hartford
Kellogg, Evangeline Kenneth	P. & S. N. Y. '78	New Britain
Kelly, Michael J.	Balt. Med. Coll. '91	Wareham Falls
Kenny, Ernest Russell	Maryland, '91	Winsted
Kendall, John Calvin, B.A.		
Yale, '78	P. & S. N. Y. '75	Needham
Keniston, James Mortimer	Harvard, '71	Hartford
Kenna, William Matthew		
Ph.D., Yale, '86	Yale, '91	New Haven
Kennedy, Paul Bernard	Richmond, '85	West Haven
Kent, John Hayden	Harvard, '66	Pittsford
Kierman, Walter Henry	Trinity, Hartford, '91	Danbury
Kilbourn, Clarence Leishman	Yale, '87	New Haven
Kilbourn, Joseph Austin	P. & S. Balt., '97	Hartford
Kimball, Ruth Wilmet, A.B.		
Williams, '87	L. I. Hosp. Coll., '89	Norwich
King, Howard Frost	Albany Med. Coll. '89	Windsor
Kingsman, James Henry		
A.B., Yale, '87	P. & S. N. Y., '91	Hidestown
Kingsbury, William Sanford	Yale, '94	Hamden
Kirby, Frank Alonzo	Columbia Univ.,	
	Wash., D. C., '95	New Haven
Klein, Alvin Walter	Cornell Coll. Med. &	
	Surg., '89	Greenwich
Kleske, Henry Frederick	Univ. N. Y., '91	New Haven
Knight, Charles Mills	Louisville, '91	Cheshire
Knight, George Henry, A. M.		
Yale, '88	P. & S. N. Y., '88	Lakeville
Knight, William Ward	Univ. N. Y., '16	Hartford
Kowalewski, Victor Alexan-		
der, B.A., Yale, '99	Yale, '91	West Haven
Laden, Michael Richard	Univ. N. Y., '98	Hartford
Lally, Thomas John	Albany, '89	Waterbury
Lamb, University Stafford	Buffalo, '91	New Haven
Lambert, Benjamin Lott	Univ. N. Y., '82	New Britain
Lamson, Jr., Edward Nath-		
aniel, A.B., Trinity, '91	P. & S. N. Y., '94	Hartford
LaPierre, Julian	Belleus, '91	Norwich
LaPierre, Louis Franklin	Yale, '91	Hamden
LaPierre, John William Hen-	Laval Univ., Mon-	
ry	real, '92	Stoughton
Lafay, Oscar	Viet., Montreal, '71	Pittsford
Lauber, Robert, M.A.,		
Windsor, '18	Yale, '71	Bridgeport
Law, Homer Lucernus	Jefferson, '83	Hartford
Lawrence, George Wash-		
ington	Yale, '88	East Berlin
Lawson, George Newton		
B.A., Yale, '99	Yale, '91	M. Hadham

Name	Medical Graduation.	P. O. Address
Lawton, Franklin Lyman, Ph.D., Yale, '88.	Yale, '88	Hartford
Lay, Walter Ciddens.	Yale, '81.	Hartford
LeClair, Charles Joseph.	Victoria, '81	Easton
Lee, Frank Herbert.	Albany, '88.	Canaan
Lee, Harry Moore.	Columbia, '98.	New London
Lemmon, George Edward.	Belleus, '85.	Danbury
Leverly, Charles Joseph.	N. Y. Univ. & Coll., '61.	Bridgeport
Lewis, George Frances, B.A., '84.	Yale, '85.	Collierville
Lewis, George Frederick, B.A., Trinity, '77.	Yale, '84.	Shelton
Lewis, John Benjamin.	Univ. N. Y., '51.	Hartford
Lindsay, Charles Augustus, B.A., Trinity, '89; M.A., Yale, '91.	Yale, '89.	New Haven
Lindsay, Chas. Parry, Ph.D., Yale, '78.	Yale, '78.	New Haven
Littlejohn, Percy Duncan.	Yale, '87.	New Haven
Lockhart, Reuben Arthur.	Yale, '81	Bridgeport
Loden, Michael.	Bowdoin, '81.	Hartford
Look, Frank Byron.	Yale, '81.	Dorby
Loonis, Francis Newton, B.A., Yale, '81.	Yale, '87.	Waberton
Loveland, Ernest Kilburn.	Harvard, '81.	Hiddesheim
Loveland, John Elijah, A.B., Western, '88.	Dartmouth, '87.	Wood's Valley
Low, Henry Russell.	Univ. N. Y., '88.	Kidgley
Low, Russell Walter.	P. & S. N. Y., '78.	New Haven
Lutz, John Francis, Ph.D., Yale, '78.	Wool Coll., Pa., '85.	Saybrook
Luther, Callista Victor.	Univ. Va., '92.	Wallingford
Lyman, David Russell.	Univ. N. Y., '88.	Bridgeport
Lynch, John Charles.	Belleus, '92.	Bridgeport
Lynch, Robert Joseph.	Berkshire, '81.	New Britain
Lyons, Edwin Bradbury.	P. & S. N. Y., '89.	Litchfield
MacLaren, Wm. Stevenson.	Bell. Med., '91	Stanford
MacLean, Donald Robert.	Yale, '84.	New Haven
Maher, James Stephen, Ph.D., Yale, '82.	Yale, '81	New Haven
Maher, Stephen John.	Yale, '93	Shelton
Makovey, Joseph George.	Yale, '78.	New Haven
Mallhouse, Max, Ph.D., Yale, '76.	Univ. Pa., '95.	Middleton
Manchard, Lewis.	Univ. N. Y., '98.	Waterbury
McDonay, Daniel Joseph.	L. I. Hosp. Coll., '82.	Ridgefield
Mansfield, Howard Parker.	Univ. Naples, '21.	New Haven
Marian, Nicola.	Univ. Fl., '82.	New Haven
Marck, Arthur Washburn.	Harvard, '81.	Safford
Mason, Jervis King, Yale, B.A., '81; M.A., '83.	P. & S. N. Y., '91.	So. Coventry
Mason, Louis Irving.	P. & S. N. Y., '79.	Danbury
Matheson, Earl.	M.D., '88.	Williamstown
May, George William.	Chicago, '75.	Bridgeport
May, Jacob Rush.	Univ. Fl., '88.	Farmdale
Mayberry, Franklin Harden.	Cincinnati, '87.	Hartford
Mayer, Nathan.	Yale, '81.	New Haven
McCabe, Edward Michael, B.A., Manhattan, '82.	P. & S. N. Y., '84.	Hartford
McCook, John Butler.	Yale, '83.	New Haven
McDermott, Terence Stevens.	Univ. N. Y., '71.	Waterbury
McDonald, Edward Wain.	Yale, '91.	New Haven
McDonnell, Ralph Augustus, B.A., Yale, '80.	Univ. N. Y., '86.	Green Farms
McFarland, David Walter.		

Name.	Medical Graduation.	P. O. Address.
McGuaghay, James David.	Jefferson, '76.	Wallingford.
McIntosh, Edward Francis.	Yale, '31.	New Haven.
McIntosh, James Patrick.	Victoria, '37.	N. Dovermouth.
McKee, Frederick Lyman.	P. & S. N. Y., '93.	Hartford.
McKnight, Everett James.	P. & S. N. Y., '78.	Hartford.
M.A., Yale, '76.	Jefferson, '78.	New Haven.
McMaster, Gilbert Totten.	Dartmouth, '74.	New Haven.
McNeil, Archibald.	Yale, '51.	New Haven.
McNeil, Hollis.	Wern. Med. Coll., Phil., '88.	
Mead, Kate Campbell.	Medical Univ., '75.	Middletown.
Meek, James Albert.	Bolton, '79.	Middletown.
Meeks, Harold Albert.	Med. Clin., Phil., '91.	Hampton.
Meyers, Arthur Henry.	P. & S. N. Y., '91.	Bridgeport.
Miles, Henry Stillingford.	P. & S. N. Y., '93.	Hartford.
Ph.D., N. Y., '98.	Albany, '78.	Southwest.
Miller, George Root.	L. I. Hosp. Coll., '51.	Waterford.
Miller, William Dudley.	Univ. N. Y., '91.	Middletown.
Minor, George Maynard.	Univ. Pa., '58.	Worcester.
Mitchell, James Thomas.	Dartmouth, '93.	Bridgeport.
Monahan, Charles Andrew.	Dartmouth, '74.	New Haven.
B.S., Trinity, '72.	Buffalo, '78.	New Haven.
Monahan, David Henry.	Wash. Univ., Mo., '93.	Bell.
M.A., Manhattan, '81.	Bellevue, '71.	Torington.
Monahan, Joseph Bernard.	Univ. Viet., '84.	Pittman.
Moody, Mary Blair.	P. & S. N. Y., '76.	Hartford.
Moore, Homer Franklin.	Harvard, '86.	Waterbury.
Moore, Edward Doolittle.	L. I. Hosp. Coll., '89.	Patterson.
Morano, Lewis Ovid.	Yale, '81.	Rocky Hill.
Morgan, William Denison.	Yale, '71.	New Haven.
A.B., Trinity, '72.	Jefferson, '74.	Middletown.
Mortley, James Liggett.	P. & S. N. Y., '91.	Hartford.
Morris, Frederick Augustus.	P. & S. N. Y., '83.	Waterbury.
B.A., Oberlin, '91. M.A.,	Univ. Pa., '75.	Portland.
Moser, Oran Alexander.	Bolton, '79.	Middletown.
Moulton, Edward Belmont.	Albany Med. Coll., '81.	E. Hartford.
B.A., Oberlin, '91.	Yale, '78.	New Haven.
Moutain, John Henry.	Univ. Pa., '93.	Hartford.
Mulohy, Thomas Aloysius.	Harvard, '61.	New London.
Munger, Carl Eugene.	Yale, '51.	Shelton.
Ph.D., Yale, '88.	L. I. Hosp. Coll., '88.	Bridgeport.
Murphy, James.	Yale, '58.	Stamford Springs.
Murphy, Michael Daniel.	Yale, '51.	Safford.
Murphy, Walter Graham.	P. & S. N. Y., '81.	Killingworth.
Nadler, Alfred Goldstein.	N. Y. Med. Coll., '57.	Menden.
B.A., Yale, '91.	Yale, '44.	New Haven.
Naylor, James Henry.	P. & S. N. Y., '71.	Middletown.
Nelson, Abel Ward.	Med. Chir. Col. Pa.,	Middletown.
Nettleton, Francis Irving.	Tulsa, '98.	Wallingford.
Ph.D., Yale, '74.	L. I. Hosp. Coll., '72.	Goshen.
Nettleton, Irving LaField.		
Newton, Cyrus Brownlie.		
Newton, Matthew Turner.		
Nichols, Edward Payson.		
A.B., Col. N.J. (Princeton)		
'81. A.M., '51.		
Nickerson, Nehemiah.		
Nixon, John.		
Noble, Henry Smith, A.B.		
'53.		
Nolan, Daniel Andrew.		
Ph.D., Phil., '92.		
North, Caroline.		
North, James Howard.		

Name.	Medical Graduation.	P. O. Address.
North, John Leopold.	Louisville, '24.	Avon.
Norkins, Louis Adolph.	Yale, '02.	New Haven.
Noxon, George Henry.	Balt. Med. Coll., '33.	Darien.
Ober, George Eugene.	Univ. Vt., '30.	Bridgeport.
O'Connell, Thomas Smith.	P. & S. Hall, '72.	E. Hartford.
O'Connell Timothy Griffin.	Yale, '22.	Stamford.
O'Connor, Matthew Charles.		
A.B., St. Francis X., N.Y., '45.	P. & S. N.Y., '72.	New Haven.
O'Connor, Patrick Thomas.	Bellevue, '22.	Waterbury.
O'Flaherty, Elmes Pembroke.	Cornell, '91.	Hartford.
O'Hara, Bernard Augustine.	Bellevue, '22.	Waterbury.
O'Hara, William James.		
Alexander.	P. & S. Hall, '22.	Bridgeport.
O'Loughlin, Thomas Francis.	Univ. N.Y., '26.	Rockville.
Osborn, George Wakeham.		
B.A., Yale, '44.	P. & S. N.Y., '52.	Bridgeport.
Osborne, Oliver Thomas.	Yale, '34.	New Haven.
Otis, Samuel Dickinson.	Univ. N.Y., '11.	Middletown.
Overlook, Selden Barden.	Bellevue, '22.	Pondfret.
Owens, William Thomas.	Univ. Vt., '28.	Hartford.
Padonak, Lewis Sisk, M.A.	N.Y. Med. Coll., '24.	Norwich.
Page, Charles Lihamer.	P. & S. N.Y., '30.	Litchfield.
Paine, Robert Child.	Dartmouth, '46.	Thompson.
Pallman, Theodore Dominick.	Yale, '21.	New Haven.
Park, Charles Edwin.	Yale, '22.	New Haven.
Parker, Theodore Raymond.	Univ. N.Y., '30.	Williamsville.
Parnell, George Luther.		
D.M.D., Harvard, '16.	L. I. Hosp. Coll., '29.	Hartford.
Parsons, Edward Field, A.B.		
Williams, '48.	P. & S. N.Y., '48.	Thompsonville.
Peck, Anthony, B.A.		
Hamden, '12.	Univ. N.Y., '16.	Norwich.
Peck, Robert Ellsworth.		
Ph.D., Yale, '39.	Yale, '33.	New Haven.
Peckham, Lucy Croomer.	Wom. Med. Coll., '45.	New Haven.
Perdue, Robert Ernest.	Stanford, '22.	Southport.
Perkins, Charles Harris.	P. & S. N.Y., '21.	Norwich.
Perkins, William Sheldon.		
Clark.	P. & S. N.Y., '40.	Norwich.
Phelps, Charles Dickinson.		
B.A., Amherst, '39; M.A.,	P. & S. N.Y., '40.	West Haven.
Amherst, '27.	Wom. Med. Coll.,	
Philip, Rosabelle Gardner.	N.Y. Inf., '75.	Stamford.
	P. & S. N.Y., '22.	Stamford.
Phillips, Alfred Norton.	Univ. N.Y., '24.	Middletown.
Pierce, Elizabeth Worthington.	Yale, '22.	Hartford.
Pierson, John Corbin.	P. & S. N.Y., '21.	Stamford.
Pieron, Samuel.	Univ. Mich., '38.	Lakeville.
Pike, Ernest Reginald.	P. & S. N.Y., '28.	Dorby.
Pinner, Royal Watson.		
Pitman, Edwin Parker, B.A.	Dartmouth, '36.	New Haven.
Dartmouth, '36.	P. & S. N.Y., '51.	Torrington.
Pitt, William Legal.	Pitt, Vt., '94.	Colchester.
Plummer, Paul.		
Plummer, Matthew Wood-	Jefferson, '42.	E. Hadam.
bury.	P. & S. N.Y., '36.	Waterbury.
Pomeroy, Nelson Ann.	Hartford, '24.	Waterbury.
Posse, John Robinson.		
Porter, George Elmer, B.A.	Dartmouth, '38.	Windsor P't.
Dartmouth, '38.	Jefferson, '42.	Bridgeport.
Porter, George Lotting, B.A.		
Brown Univ., '18.		

Name.	Medical Graduation.	P. O. Address.
Porter, Isaac Napoleon, B.A., Lincoln Univ., '70.	Yale, '73.	New Haven.
Porter, William, Jr.	Chic. Med. Coll., '51.	Hartford.
Potter, Frank Edward.	P. & S. N. Y., '53.	Portland.
Powers, Frederick.	P. & S. N. Y., '73.	Westport.
Pratt, Arthur Milton.	Belleuve, '92.	Deep River.
Pratt, Edward Loomis.	Univ. N. Y., '84.	Winsted.
Pratt, Elias.	P. & S. N. Y., '87.	Torrington.
Presison, Charles Oscar. Ph.B., Yale, '71.	Yale, 1888.	Weymouth.
Ramside, Frederick S.	Univ. Vt., '91.	Wallingford.
Ramsay, Otto Gustaf. M.A., Yale, '81, Hon.	Univ. Vt., '89.	New Haven.
Rand, Richard Foster. Ph.D., Yale, '95.	Johns Hopkins, '89.	New Haven.
Randall, William Sherman. Ph.D., Yale, '89.	Yale, '81.	Spencer.
Ransom, Charles Goodrich. A.B., Williams, '84, A.M., '87.	Chic. Med. Coll., '85.	Hartford.
Ray, Wyeth Elwell.	Yale, '88.	Hartford.
Reardon, Thomas Francis.	Univ. Vt., '74.	Thompsonville.
Rees, Thomas Eben.	Univ. Md., '81.	New Britain.
Reedy, David Dillon.	Med. Coll., Phil., '89.	Winsted.
Reilly, Francis Henry.	Yale, '91.	New Haven.
Reilly, James Michael.	Yale, '79.	New Haven.
Russert, Emil Gustav.	Balt. Med. Coll., '95.	Hartford.
Rice, Walter Emerson.	Univ. Mich., '72.	Stamford.
Richards, William Spencer.	Univ. N. Y., '89.	W. Winsted.
Ring, Henry Wilson, A.B., Bowdoin, '79; M.A., Bow- doin, '82.	Me. Med. Coll., '81.	New Haven.
Rising, Harry Breed.	Yale, '84.	So. Glastonbury.
Rising, Henry Martin.	Yale, '85.	So. Glastonbury.
Robbins, Charles Henry.	Med. Coll., Balt., '95.	New Haven.
Robbins, George Orrin.	Yale, '75.	Waterbury.
Robbins, James Watson.	Belleuve, '88.	Norwalk.
Roberts, Albert Joseph.	Harvard, '95.	Bridgeport.
Roberts, Edward Kilsbume. Ph.B., Yale, '78.	Yale, '88.	New Haven.
Robinson, Joseph.	P. & S. N. Y., '78.	West Cornwall.
Robinson, Myron Patee.	Yale, '81.	Windsor Locks.
Robinson, Myron Washow.	Berkshire, '60.	Norwalk.
Robinson, Paul Skiff, Ph. B. Yale, '89.	Yale, '91.	New Haven.
Robinson, Wend.	L. I. Hosp. Coll., '68.	Danbury.
Rockwell, Thomas Francis.	Univ. N. Y., '81.	Rockville.
Rodman, Charles Shepard.	P. & S. N. Y., '88.	Waterbury.
Rogers, Frederick.	Univ. N. Y., '82.	Williamson.
Rogers, Thomas Weaver.	P. & S. N. Y., '79.	New London.
Ross, Edward King.	Univ. N. Y., '79.	Hartford.
Ross, Joseph Edward, B.S., Boston Univ., '76.	P. & S. N. Y., '81.	Hartford.
Ross, John Henry.	Univ. N. Y., '82.	Hartford.
Rosley, Alfred Merriman.	Univ. Vt., '87.	New Haven.
Ruskobit, Arthur.	Univ. Vt., '87.	Westport.
Rundlett, David Livingston.	P. & S. N. Y., '89.	New Haven.
Russell, George Washington.	Belleuve, '86.	Waterbury.
Russell, Gordon Wadsworth. Trinity, B.A., '84; M. A., '87.	Yale, '87.	Hartford.
Russell, Thomas Hubbard. Ph.B., Yale, '71.	Yale, '71.	New Haven.
Russell, William Spencer.	Yale, '80.	Wallingford.
Ryan, Patrick Joseph.	Niagara, '95.	Hartford.

Name.	Medical Graduation.	P. O. Address.
Byss, Timothy Mayher. A.M. Lebanon Coll.	Baltimore, '67.	Torrington.
Sanford, Leonard Lehen. B.A., Yale, '74.	Yale, '85.	New Haven.
Sanford, Ward Harding.	Med. Res. Coll., '91.	New Haven.
Sevin, Charles Henry.	P. & S. N. Y., '54.	Stamford.
Sevier, William Allen.	Med. Res. Coll., '87.	New Canaan.
Sevier, Jay Webster, A.D., Yale, '92, M.D., '95.	Univ. N. Y., '92.	Portland.
Schaefer, Franklin.	Yale, '86.	New Haven.
Schickel, Julius Theodore.	Univ. N. Y., '85.	Leitchfield.
Seagr, Gordon Clark.	P. & S. N. Y., '82.	Hartford.
Seaton, William.	Univ. N. Y., '87.	Danbury.
Seaton, William Hamilton.	Jefferson, '90.	Hamden.
Seaton, William Joseph.	Univ. Vt., '82.	Norwich.
Seaton, James Leonard.	Victoria, '87.	Durham.
Seaton, Robert Thomas.	Univ. N. Y., '85.	Derby.
Seaton, George Francis. Ph.D., Yale, '95.	Yale, '91.	Bridgeport.
Seaton, William Joseph. B.A. Amherst Coll., '92.	Yale, '91.	New Haven.
Seaton, Gustav Arthur. M.A., Yale, '91.	Yale, '89.	Shelton.
Seaton, Dorell.	Yale, '84.	West Haven.
Seaton, John Mcintosh.	Univ. N. Y., '89.	Madison.
Seaton, George Hubert.	Yale, '86.	Hartford.
Seaton, Henry Clifford.	Univ. N. Y., '91.	South Norwalk.
Seaton, George.	P. & S. '91.	Stamford.
Seaton, Stuart Wakeman.	Univ. Pa., '92.	Westport.
Seaton, Frederick Thomas. B.A., Yale, '79.	Me. Med. Coll., '84.	Hartford.
Seaton, Francis Sands.	Univ. N. Y., '88.	Falls Village.
Seaton, Clarence Edward.	Yale, '91.	New Haven.
Seaton, Lester Zebiah.	Med. Res. Coll., '94.	Windsor.
Seaton, Morris Dore.	Yale, '92.	Hartford.
Seaton, George Everett.	Dartmouth, '85.	Hartford.
Seaton, Thomas George.	P. & S. N. Y., '99.	H. Manchester.
Seaton, Louis Mark.	Yale, '85.	Bridgeport.
Seaton, Andrew Jackson.	P. & S. N. Y., '82.	Bridgeport.
Seaton, Charles.	S. I. Hosp., '86.	Riverside.
Seaton, Edward Dorland. A.B., Yale, '78.	Yale, '78.	
Seaton, Earl Terry.	Yale, '87.	Hartford.
Seaton, Kewanda Montross.	P. & S. N. Y., '82.	Bridgeport.
Seaton, Edward West, A.D., Yale, '78.	McGill Med., '83.	Morison.
Seaton, Ernest Herman, A.D., Amherst, '85.	P. & S. N. Y., '88.	Redding.
Seaton, Frank Lewis.	Univ. N. Y., '78.	Stamford Sp'gs.
Seaton, Frank Llewellyn.	Albany, '82.	Bridgeport.
Seaton, Frederick Switzer. B.A., Yale, '78.	Yale, '82.	Chester.
Seaton, Herbert Eugene. Ph.D., Yale, '79.	Univ. Pa., '82.	New Haven.
Seaton, Henry Hubert.	Jefferson, '77.	New Haven.
Seaton, Howard Franklin. B.A., Yale, '94.	Yale, '94.	Hartford.
Seaton, Marvin.	Univ. N. Y., '82.	New Haven.
Seaton, Newton Plimmas.	P. & S. N. Y., '82.	Norwich.
Seaton, Oliver Cotton.	S. I. Hosp. Coll., '82.	Hartford.
Seaton, Herbert Edmund.	McGill Univ., '84.	Bridgeport.
Seaton, Frank Simpson.	Albany, '82.	Hartford.
Seaton, Frederick Noyes.	Yale, '94.	New Haven.
Seaton, William.	Univ. Vt., '84.	New Haven.

Name.	Medical Graduation.	P. O. Address.
Spring, Frederick.	Univ. N. Y., '82.	Newburgh.
Spaulding, James Herbert.	Univ. N. Y., '85.	Hartford.
Stadley, Charles Everett.	Univ. Pa., '16.	Manchester.
Stanton, George Dallas.	Bellows, '85.	Storington.
Stanton, John Gilman.		
D.A., Anheuser, '79.	Wurzburg, '78.	New London.
Stanton, Thomas Francis.	P. & S. Med., '94.	Bridgeport.
Stath, George Edwards.	L. J. Hosp. Coll., '92.	New Milford.
Stedman, Willard George.	Bellows, '71.	Washington.
Stearns, Henry Putnam.		
D.A., Yale, '51; M.A., '58.	Yale, '55.	Hartford.
Steele, Henry Mortizana.		
Ph.D., Yale, '91.	Johns Hopkins, '91.	New Haven.
Steiner, Walter Ralph.		
A.B., Yale, '72; M.A., Yale, '75.	Johns Hopkins, '83.	Hartford.
Stetson, James Ebenezer.	Yale, '81.	New Haven.
Stevens, Frank William.	Yale, '84.	Bridgeport.
St. John, Samuel Benedict.		
D.A., Yale, '81.	P. & S. N. Y., '71.	Hartford.
Stoll, Henry Farnam.	P. & S. N. Y., '67.	Hartford.
Stone, Jay Abner.	P. & S. N. Y., '85.	New Britain.
Stocks, Eddley Harmon.	Bellows, '86.	Hartford.
Stouchman, Arthur Volney.		
D.A., Pomona, Calif.	Univ. Ohio, '88.	Terryville.
Stratton, Edward Augustus.	Univ. N. Y., '82.	Danbury.
Street, Philo William.	Univ. Vt., '87.	Suffield.
Streish, James.	Univ. Cal., Richmond, Va., '42.	Stamford Forge.
Strong, Herman.	Univ. Berlin, '84.	New Britain.
Sullivan, Daniel.	Univ. N. Y., '97.	New London.
Sullivan, Daniel Francis.		
A.B., Niagara Univ., '87.	Niagara Univ., '81.	Hartford.
Sullivan, John Francis.		
D.A., Yale, '78.	P. & S. N. Y., '91.	New Haven.
Swin, Henry Lawrence.	Yale, '84.	New Haven.
Sweeney, Ernest Peter.	P. & S. N. Y., '89.	New Britain.
Sweet, Josiah.	Univ. Vt., '78.	New Hartford.
Sweet, Paul Farnham.	Univ. N. Y., '84.	New Hartford.
Taft, Charles Ezra.	Harvard, '88.	Hartford.
Tanner, Alfred Herbert.	Bellows, '78.	Brooklyn.
Taylor, John Clinton.	Mich. Univ., '91.	New London.
Teague, Julia Ercelline.	Wasson's Med. Coll., Pa., '88.	New Haven.
A.B., Yale, '85.		
Tessey, Arthur John.		
Ph.D., Yale, '77.	Yale, '82.	Granby.
Thibault, Louis Joseph.	Yale, 1896.	Waterbury.
Thompson, George.	Mo. Med. Coll., '82.	Tatletta.
Thompson, Emma Jane.	Women's Med. Coll., N. Y., Int., '86.	Hartford.
Thompson, Harriet Adeline.	Women's Med. Coll., Penn., '92.	Bridgeport.
Thompson, Lloyd Orth.	Dartmouth, '87.	Greenwich.
Tiffany, Frank Morris.		
A.B., Anheuser, '91.	Univ. Pa., '86.	Standard.
Taugler, Wilbur Kinney.	Bellows, '88.	Norwich.
Tucker, William Richard.	Univ. N. Y., '89.	So. Manchester.
Tuppala, Jacob Reed.	Univ. N. Y., '82.	Bridgeport.
Townsend, Charles Rodman.	Albany, '85.	Bridgeport.
Townsend, George Hodgson.	Bellows, '73.	Peter Creek.
Townsend, Jos. Hendler.		
D.A., Yale, '85.	Yale, '87.	New Haven.
Tracey, William Joseph.	Univ. N. Y., '81.	Norwalk.
Tracy, Andrew William.	McGill, Mont., '72.	Morison.

Name	Medical Graduation	P. O. Address
Treadway, William Ducking- ton.	Univ. Med., '41.	Stamford.
Tremaine, David Benson.	Dartmouth, '44.	Bridgeport.
Tutor, Mary Starr.	Wesley's Med. Coll. Mass., '92.	South Windsor.
Tukey, Frank Martin, D.D. Bowdoin, '51.	Harvard, '54.	Bridgeport.
Turner, Arthur Robert, A.B. Amherst, '84.	Univ. Penn., '84.	Norwalk.
Turner, Sylvester Wooster, B.A., Yale, '45.	Yale, '46.	Cheshire.
Tuttle, Albert Lake.	Albany, '85.	Hilltop.
Tuttle, Charles Allen, Ph.D., Yale, '88.	Yale, '91.	New Haven.
Tyler, Jr., Herman Augustus.	Yale, '93.	Hartford.
VanStrunten, William Harold.	Univ. Va., '86.	Hartford.
Von Vleet, Peter P.	Bellevue, '83.	Stamford.
Vernon, Henry George.	P. & S. Balt., '82.	Thompsonville.
Voril, William Francis.	Yale '91.	New Haven.
Vorstedt, Albert Eugene, D.A., Yale, '85.	Yale, '88.	Middletown.
Wade, John Alexander.	Bellevue, '81.	Stamford.
Wadsworth, Sanford House.	Yale, '88.	Perfington.
Wadsworth, Noah Samuel, Ph.D., Yale, '97.	Yale, '99.	Cothran.
Walt, Frank Lewis.	Bellevue, '88.	Hartford.
Walsh, Frederick William.	P. & S. Balt., '81.	Stamford.
Walsh, Thomas Patrick.	Univ. Vt., '92.	Bridgeport.
Wasson, Charles Norton.	Bellevue, '84.	Litchfield.
Warner, George Howell.	Yale, '97.	Bridgeport.
Wason, David Houghton.	P. & S. N. Y., '88.	Bridgeport.
Waterhouse, Henry Edwin.	P. & S. N. Y., '97.	Bridgeport.
Watkins, John Bradford.	Univ. Vt., '94.	Hartford.
Watson, William Seymour.	L. I. Hosp. Coll., '81.	Danbury.
Weaver, William Marvin.	Yale, '81.	Hartford.
Webb, David Moses, D.A., Yale, '46.	Yale, '47.	Middletown.
Webster, Calvin.	Univ. Ind., '51.	Manchester.
Weir, Janet Marshall.	Queen's Un., King- ston, Ont., '91.	Hartford.
Weiss, Edward Hubbard.	Yale, '86.	W. Windsor.
Welch, George Kellogg.	P. & S. N. Y., '71.	Hartford.
Welch, Harry Lloyd, A.B., Yale, '87.	Yale, '84.	New Haven.
Welch, William Collins.	Yale, '77.	New Haven.
Wellen, John.	Univ. N. Y., '83.	Williamsville.
Wellen, Thomas Henry.	Univ. N. Y., '82.	Manchester.
Wellington, Wm. Winthrop.	Univ. Vt., '88.	Terryville.
Wells, Ernest Allen, A.B. Yale, '87.	Johns Hopkins, '81.	Hartford.
West, Bedford B.	Univ. N. Y., '79.	Hartford.
Whaler, Franklin, B.A., Yale, '47; M.A., Yale, '52.	P. & S. N. Y., '52.	Manchester.
Whelan, Francis Henry, B.A., Yale, '86.	Yale, '82.	New Haven.
Whelan, Louis Hawley.	Yale, '87.	Westport.
White, Benjamin Walker.	L. I. Hosp. Coll., '86.	Bridgeport.
White, Robert Crighton.	Univ. Vt., '89.	Williamsville.
Whiton, Francis Henry.	Dartmouth, '71.	Manchester.
Whitmore, Edw. Lancaster, Ph.D., Yale, '87.	Univ. Va., '84.	New Britain.
Whitmore, Frank Hamilton.	Bellevue, '71.	New Haven.
Wight, George DeWitt.	Bellevue, '87.	Bethel.
Willard, Frederick Russell.	Univ. Vt., '89.	Hartford.

Name.	Medical Graduation.	P. O. Address.
Williams, Marston Walker. A.B., Radcliffe, '77.	Johns Hopkins, '91.	Hartford.
Williams, Allen Hamilton. A.B., Hartford, '71.	Harvard, '91.	Hartford.
Winnat, Louis Howard.	Univ. N. Y., '51.	Amenia.
Wixon, Frederick Morris. A.B., Colby, '71.	Harvard, '75.	Bridgeport.
Wixon, William Patrick.	P. & S. Balt., '88.	Wallingford.
Wolcott, William Virgil.	Yale, '67.	West Haven.
Worrell, Edward Elmer, A.B. Worcester, '77.	P. & S. N. Y., '42.	New Haven.
Wright, William Kilian.	Univ. N. Y., '91.	New Haven.
Wright, Ernest Oliver.	Yale, '71, '80.	Rockville.
Wright, John Russell.	P. & S. N. Y., '91.	Hartford.
Wright, William.	Yale, '85.	Norwich.
Wright, Arthur Jacob.	Yale Med. Coll., '24. Baltimore, '32.	Hartford.
Wheeler, Charles Morris.	Univ. N. Y., '79.	Torrville.
Woodin, Nathaniel Eugene. B.A., Yale, '70; Yale, M.A., '72.	Jefferson, '72. Baltimore, '88.	Bridgeport.
Woods, Frank Walter.	P. & S. N. Y., '94.	New Haven.
Wright, George Horrocks.		New Milford.
Wright, John Westbrook. A.B., St. Bernard, '77.	Univ. N. Y., '89.	Bridgeport.
Wright, Theodore Howells.	Univ. N. Y., '85.	New Britain.
Wright, William Charles. Ph.D., Yale, '32.	Yale, '22.	New Haven.
Young, Charles William.	P. & S. N. Y., '84.	Middletown.

Members noticing any errors or omissions in any part of this record will please inform the Secretary for correction in future lists.

YALE UNIVERSITY.

DEPARTMENT OF MEDICINE.

The Yale Medical School is a department of Yale University. Students of this Medical School, therefore, have all the advantages of residence in a large university, such as the use of the Libraries, the Gymnasium, the University Dining Hall, and the Museum. They are also admitted to many lectures on matters of current interest.

The curriculum is graded and is based on the assumption that medical sciences are best taught by the same methods as other sciences, namely, by the personal work of the student under the careful supervision of his instructors.

The school has well equipped laboratories, abundantly supplied with materials for instruction and research. The clinical instruction is carried on chiefly at the New Haven Hospital and the New Haven Dispensary. Class instruction in the Hospital is conducted in the Farnam Operating Theater and the Medical Amphitheater recently erected at the University. The New Haven Dispensary now occupies the new University Clinic which has been erected near the Hospital.

The residence requirement for matriculation is the high school course or its equivalent. For information concerning the curriculum, tuition fees, books and grades, see the annual announcement, which will be furnished on application to the Dean.

FACULTY AND OTHER OFFICERS.

ARTHUR TWISS HADLEY, LL. D., *President.*

HENRY EDWIN SMITH, M. D., *Dean of the Medical School and Professor of Chemistry.*

CHARLES AUGUSTUS LECHELEY, M. D., *Professor of the Theory and Practice of Medicine, Emeritus, and Lecturer on Sanitary Science.*

WILLIAM HENRY CARRSLE, M. D., *Professor of the Principles and Practice of Surgery.*

THOMAS HOWARD RUSSELL, M. D., *Professor of Clinical Surgery and Lecturer on Surgical Anatomy.*

JOHN BLAKE ELY, M. D., *Professor of the Theory and Practice of Medicine.*

OLIVER THOMAS OSBORNE, M. D., *Professor of Materia Medica and Therapeutics.*

HENRY LAWRENCE SWAIN, M. D., *Clinical Professor of Ophthalmology.*

HARRY EDWIN PERSSON, M. D., *E. N. Hart Professor of Anatomy.*

OTIS GUYLER RABBITT, M. D., *Professor of Obstetrics and Gynecology.*

RALPH AUGUSTINE McDONOUGH, M. D., *Clinical Professor of Dermatology.*

CHARLES JOSEPH BARTLEY, M. D., *Professor of Pathology.*

YANDELL HENDERSON, Ph. D., *Assistant Professor of Physiology.*

FRANK BAKER, H. D., *Lecturer on Medical Jurisprudence.*

GEORGE EDWARD SMITHMAN, M. D., *Lecturer on Life Insurance Examination.*

MAX MAILMAN, M. D., *Clinical Lecturer on Neurology.*

EDWARD MICHAEL MCCABE, M. D., *Clinical Instructor in Ophthalmology.*

LESLIE BENDISY BAKER, M. D., *Instructor in Pediatrics.*

- LEONARD WOODRICK BACON, JR., M.D., *Instructor in Surgery.*
 CHARLES DECHERMAN PHILLIPS, M.D., *Instructor in Physical Diagnosis.*
 RUSSET ELLIOTT-PAGE, M.D., *Instructor in Neurology.*
 WILLIAM SPRINGRICK, M.D., *Demonstrator of the Use of X-Rays.*
 FREDERICK COTCHING BIRNBOIM, M.D., *Clinical Instructor in Otolaryngology.*
 SAMUEL MOWBRAY HAMMOND, M.D., *Clinical Instructor in Medicine.*
 WILLIAM FRANK VERRILL, M.D., *Instructor in Surgery.*
 ERNEST HERMAN ARNOLD, M.D., *Instructor in Otolaryngology.*
 ALLEN HOWE DUFFENBARGER, M.D., *Lecturer in Psychiatry.*
 FREDERICK NILES SPURGEON, M.D., *Demonstrator of Anatomy and Clinical Instructor in Laryngology.*
 LEO FREDERICK HETTINGER, Ph.D., *Instructor in Bacteriology.*
 SHERMAN FRANCIS MCINTOSH, M.D., *Clinical Instructor in the Diseases of the Stomach.*
 CLARENCE GIMNEY STALDING, Ph.D., *Demonstrator of Pharmacy.*
 THOMAS GEORGE SLOAN, M.D., *Lecturer on Anesthesia.*
 DAVID RUSSELL LYMAN, M.D., *Clinical Instructor in Medicine.*
 THOMAS VINCENT HENEA, M.D., *Clinical Instructor in Obstetrics.*
 CARL WILLIAM HENCK, M.D., *Clinical Instructor in Medicine.*
 HAROLD CORNELIUS BLANCKET, Ph.D., *Instructor in Chemistry.*
 HARRIST BENTON PERLES, *Clerk of the Medical School, and Private Secretary to the Dean.*
 FLORENCE BISHAM KINNE, M.A., *Laboratory Assistant in Pathology.*
 WILLIAM BILL BRAY, M.D., *Clinical Assistant in Medicine.*
 LEONARD CYRUS SANFORD, M.D., *Clinical Assistant in Surgery.*
 HENRY FREDERICK KALCKE, M.D., *Clinical Assistant in Dermatology.*
 ALFRED GOLDSTEIN NABLER, M.D., *Clinical Assistant in Pediatrics.*
 HARRY MONTGOMERY SPURGEON, M.D., *Clinical Assistant in Pediatrics and Assistant in Pathology.*
 HARRY LITTLE WELCH, M.D., *Clinical Assistant in Gynecology.*
 WILLIAM HANFORD CROWL, M.D., *Clinical Assistant in Ophthalmology.*
 WILLIAM ELIAS HAYFORDSON, M.D., *Assistant in Pathology, and Clinical Assistant in Surgery.*
 RICHARD FORTER BANT, M.D., *Clinical Assistant in Gynecology and in Surgery.*
 PAUL BERNARD KENNEDY, M.D., *Clinical Assistant in Medicine.*
 DWIGHT MILTON LEWIS, M.D., *Clinical Assistant in Medicine.*
 WILLIAM NELSON WATTS, M.D., *Clinical Assistant in Pediatrics.*
 WALTON SHERMAN LAY, M.D., *Clinical Assistant in Pediatrics.*
 LOUIS ADOLPH NOTKINS, M.D., *Assistant in Physical Diagnosis.*

